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PART FIRST.

ORIGINAL COMMUNICATIONS.

ART. I.—*On the Management of the Shoulders in Examinations of the Chest.* By JOHN W. CORSON, M.D., late Physician to Brooklyn City Hospital; Physician to the New York and Eastern Dispensaries; Lecturer on Diseases of the Chest.*

THE greatest physician is he who best observes little things. This may not seem flattery, but it is truth. It was the glory of Hippocrates, Jenner, Laennec, Dieffenbach, and Physick, that each, more than others before him, pondered on the lines of a sick face, or the pustule on a dairy-maid's finger, the piping voice from a cavern of lung, the stretching of a cut tendon, or the uniting power of a seton. We excel each other, mainly, in details. Seeming trifles to the non-professional observer, may be to us the harbingers of life or death. The thready pulse, a dusky brow, just a line more of pupil; or the more distant warnings of a hard tumor, faint whizzing at the heart, an inch of dull and creaking lung, or a waxy face, with a white cloud in the urine, can each foreshadow the gravest of human events. Or, with the turbid urine, a few oily globules seen only through the microscope, may decide the fate of the patient. Indeed, the success of one of us beyond another in cure, often depends on so small a thing as a slight change in diet, or better form of the same drug. Let us not get above our sacred mission. Great things always impress. But the perfection of medical

* Read before the New York Academy of Medicine.

vision is that which neither magnifies nor overlooks. As the trusted guardians of life itself there is really no remedy, no influence, no symptom, too trivial for our thoughtful attention.

We recall these familiar facts, simply in apology for presenting in this paper some new points in the diagnosis of diseases of the chest, which some may deem too nice. It is only to bespeak them fair play. Nor have we ventured to trespass on the patience of our readers, without testing most of these fancied improvements with some hundreds of cases in this department, in two large Dispensaries of our city, for more than a year past.

As is well known, different chests vary in their sounds with the thickness of their natural coverings. We test this daily. A thinly coated child, a delicate female, or a spare male, gives louder resonance and clearer respiration; while in a fleshy woman or muscular man, these signs are quite diminished. Except the spots with solid viscera beneath, those places, too, with thickest walls, are dullest. Let us search for these last. On examining carefully a human thorax, it will be found that the very tops of the lungs, so important in commencing consumption, are thus *muffled*, as it were, by the bones and muscles which fasten the arm to the trunk. In front, the clavicle is stretched like an arched fender, to keep off the ear or stethoscope. And then a little below, in muscular patients, like a flat cushion, lies the great pectoral. But the most troublesome barriers are behind. Here, nearly the whole apex of the lung is capped by the thick shoulder. The scapula, with its projecting spine and sharp edges, is so uneven, that you can scarcely get a level square inch on which to rest ear or instrument; and then it is so completely padded, with the sub-scapular, serratus, supra-spinous, infra-spinous, trapezius, rhomboid and other muscles, below, above, and all around, that the signs of auscultation and percussion are quite deadened. That careful observer, the late Dr. Swett, in his first lecture, has stated that "you gain very little by percussion posteriorly above the spine of the scapula;" that here "there is little or no resonance;" and that below this, "down to its inferior angle, and anteriorly over the pectoral muscles, the advantages of percussion are quite limited, owing to the thickness of the muscles." In front this doubtless refers to fleshy patients. There is a way to lessen these obstacles. It is a slight imitation of the droll invention of Sidney Smith, who proposed as the most perfect cooler in a hot day, to take off his flesh and sit down in his bones. The arm is used like a pump handle as a lever to stretch and diminish at certain points the flexible walls of the chest. And sometimes the hands are added as hooks to pull.

I. *Retracting the shoulders and arms as in Figure* 1, *by holding the left wrist with the right hand easily behind the loins, so as to thin and expose the front and sides of the chest.**

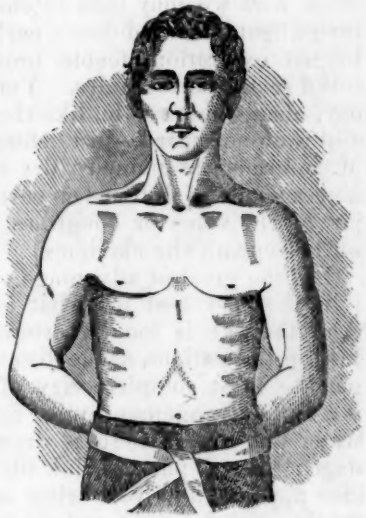

Fig. 1.

If, facing a healthy muscular man, for example, we ask him to place one hand behind the back, while the other hangs naturally by the side, we shall find on accurately comparing the tops of the lungs by auscultation and percussion, that on the tense side the sounds are slightly clearest. This probably results from three causes. First, the *fleshy obstruction is lessened* in thickness so as to hear more plainly the soft murmur of breathing. Next, the muscular substance, thus condensed by tight stretching, like spongy lung made more dense by infiltration or inflammation, becomes actually a *better conductor of sound.* And lastly, the resonance to the tapping fingers is increased, by *tightening* the flat muscles beneath them like a drum-head. And these three simple principles apply to the whole of the movements recommended.

If our subject is further asked to place both hands behind, as described above, the tones of both lungs in front are alike elevated. This experiment in health shows how we thus obtain a higher key and better test of any variation from disease.

And this position has the additional merit of giving that perfect *symmetry* so necessary in these examinations, without the usual awkward expedient of placing the patient, like a recruit, against a wall.

In muscular subjects, too, this thinning the surface at the apex, trifling as it may seem, may aid us in deciding when there is but the first faint suspicion of consumption. Every ray is precious in the dark hour when light is first dawning.

* The large drawings previously used in explanations at the Academy of Medicine were by our worthy friend and pupil, Dr. Howard. The present illustrations are exact copies from nature; the first from the chest of a stout youth of twenty, and the remaining five from that of a gentleman aged thirty-five; both either ambrotyped or daguerreotyped in these positions, and engraved by Redman.

With care we may thus intensify to the ear at the top of the lung affected such delicate early signs as rude respiration, prolonged expiration, feeble bronchophony, or the clicking of small scattered tubercles. You may, for a wonder, catch that coy, changeable rustle, like the folding of tissue paper, heard—and then not heard—just before tubercular softening, and which M. Fournet has named "dry crackling."* Or, it is easier to note a shade of dullness on percussion, or feel the least emphatic jar of the voice or cough, as the tips of the fingers are laid softly beneath the clavicles.

But the greatest advantage of this posture, is that anteriorly it is the very best for what is technically termed inspection. And the eye is too important a witness to be neglected here. Facing the patient, at the distance of two or three feet, you thus get the most complete view of the front and sides. Indeed, it is a little arrangement quite artistic. The arms are out of the way; the coat of flesh is drawn closely till it fits like a bandage; the soft parts shrink till the fine interlacing of the muscles appears, and you bring out the fainter lines, as a painter would, with his light and shade. All this helps in comparing. The least stiffness or inequality over either lung from disease is easily detected.

Again, by this pulling back of the shoulders, the handsbreadth below the clavicle, so painfully interesting in the insidious commencement of consumption, is actually enlarged. It is spread out as if for better scrutiny. At a critical period you may magnify the most important point. For here is seen the slight shrinking or flattening, or the little depressions of surface and the accompanying loss of motion, denoting the first stage or the *infiltration* of tubercles. These appearances soon become more marked. As cavities at last form in the lung beneath, the hollows outside, from a sort of *caving in*, as it were, become deeper, and the stiffness of the walls more apparent.†

At first, as is well known, the two lungs are scarcely ever alike diseased. It is usually near the fatal close that both become so permeated by tubercles, and justify the statistics of the great work of Louis. ‡ One often remains healthy or nearly so for a long time. Hence we have the important advantage of accurate comparison. On closely inspecting the two lungs

* Recherches Cliniques sur l'Ausculation.

† The scientific physician will excuse a few familiar illustrations here and there, not necessary for *him*, and intended for the younger students of the profession. Several of these who have generously aided us in the experiments and measurements of this paper may be among its readers. They represent a large class preparing for very arduous struggles and duties. For these we venture to define with a little care some points too imperfectly sketched at hurried Cliniques.

‡ Recherches sur la Phthisie.

above, it is easy to perceive that a sculptor, copying accurately for a bust, would have to mould and chisel a shrunk, uneven surface over the diseased lung while the healthier one would be full, round and smooth. There is also less expansion or a sort of halting in the movement of breathing over the lung most affected.

Lower down at the two sides there is secured by this plan what an artist might call a fine prospect of pleurisy. You can see every stage, from the first *hitch* in the gentle play of the ribs following the paralyzing stitch of the side involved, to the subsequent flattening of the intercostal spaces or the bulging from the effused fluid. For a rarity you may occasionally see the heart itself pushed to the right side of the sternum by hydraulic pressure—as in case No. 16 of our table—and slowly watch its gradual return as the waters subside. Lastly, you can note the invariable contraction of the side that follows the absorption and cure of empyema. With the arms thus thrown backward, the physician can readily pass the head under the axilla on either side and listen, percuss, or feel for the different signs of tubercles, pleurisy or pneumonia. It must not be forgotten, too, that in various parts of the chest the most skillful observers are occasionally puzzled with small aneurisms. It often needs almost the touch and ear of a blind man to feel their faint thrill, and hear their murmur and dullness. We not only emphasize these, but we thus get a fair field for sight. Drawing the skin, in this way, tightly against the ribs, either by a front or side view, you get a better glimpse of the least undulating tumor.

II. *Raising the shoulders and arms in the usual manner*, (fig. 2), *by locking the hands over the head, to examine the axillæ and spaces below them.*—This expedient is so customary in searching for tubercles, pneumonia and pleuritis in the localities mentioned, and its advantages are so well known that it is unnecessary to dwell upon them. It makes the ribs stand out more distinctly so as to mark well the intercostal spaces and show finely the indigitations of the serratus magnus with the external oblique muscle. It is mentioned in passing, merely to avoid a seeming omission.

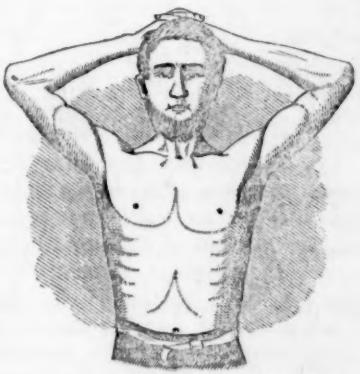

Fig. 2.

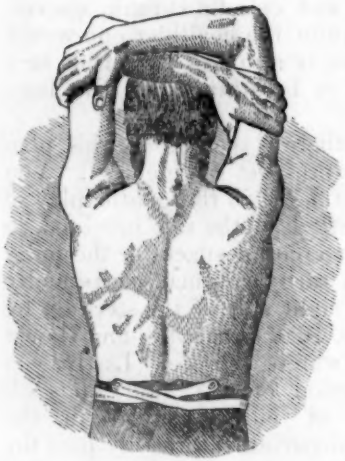

Fig. 3.

III. *Elevating the shoulders* (fig. 3) *by crossing and grasping the arms tightly behind the head so as to hoist the scapulæ to the highest point, and help uncover the lower part of the lungs at the back.*—To be candid, this showy figure has seemed the least useful of all. Yet a reference to the accompanying table of measurements, shows that by it we both separated and lifted the inferior angles of the scapulæ to the greatest possible distance. And on examining them as thus twisted round, on the living subject, it will be seen that by this means there is considerable thinning of the latissimus dorsi and lower part of the trapezius muscles. There is a triangular space, just at the base of the lung posteriorly, where it really aids us in diagnosis. We have tested this in a few cases of pneumonia and limited pleuritic effusion low down. In justice, then, it should be placed fairly on the list. Sometimes in recovery from larger effusions it has enabled us here to trace downwards feeble returning respiration, the slowly receding dullness, or the leathery friction sounds of the drying membranes. In a recent case of pleurisy of three days' duration (No. 12 of the table of cases)—with a sharp stitch in the left side, a pulse of eighty-four, firm, and a respiration of thirty-two, a furred tongue, and some stiffness of the shoulder—by this arrangement we decidedly emphasized a *grazing sound* from a spot the size of a dollar just above the diaphragm behind.

IV. *Depressing the shoulders* (fig. 4) *by bending forward, crossing arms, grasping at the loins, holding fast, and then unbending so as best to expose the apex of the lung behind.*—In a large number of the most perplexing cases of phthisis, where there are no clear signs at the top of the lung in front, they may be found at the back. But they require careful search. If we press the flexible ear into the little uneven hollow above the spine of the scapulæ, technically known as the supra-spinous fossa, or on the round inclined plane leading to it, and wait patiently till all is still, we shall often catch the harsh blowing, or fine fatty crackling of tubercles earlier than anywhere else. On this oblique irregular surface it is a little awkward to fit a

stethoscope. This important point has been noticed by that excellent authority in diagnosis, Dr. Walshe. Below this, is a favorite haunt of early tubercular deposits. They are apt to *burrow*, as it were, beneath the top of the shoulder. Small groups may sometimes be heard here *as if two little pieces of leather lay imbedded one above another in the top of the lung, besmeared with butter between, and creaked with a faint fatty sound to and fro with the breathing.*

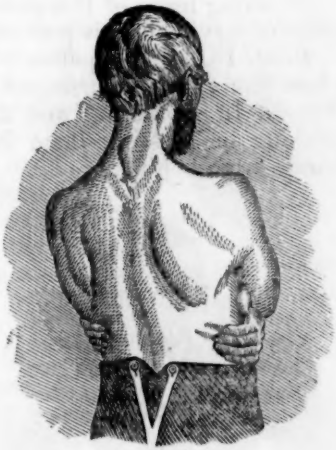

Fig. 4.

It was early an object in these investigations, to improve our means of access to this too-much neglected spot. After many experiments in what a humorous friend calls "Bodily Contortions"—somewhat after the style of the statue of Laocoön—we hit upon the above, as the best. We wish it were better; yet, if it shall lead to more care here, it will not be in vain. The measurements of our table, prove that it slides downwards the shoulders more than any other process. The next position we shall mention, separates them as widely at the top, but fails in depressing them, and is also open to the objection of raising a fold of the trapezius along the edge of the lesser rhomboid, like that of a blanket towards the end, when stretched in the middle. This ridge on either side, meets in the centre, at the spinal column above, and forms an arch like the top of a gothic window. By the present process, however, it is leveled. Sliding off the irregular thick scapulæ in this way you flatten down the anterior edge of the trapezius, and all about the line of the levator anguli scapulæ, there is a smooth, comfortable bed for the ear. You are thus considerably nearer the very top of the lung. Of course the sounds are louder. At the highest point, we have recently detected in a small cavity, not otherwise perceptible, the delicate "cavernulous rhonchus" of M. Hirtz. There is a painful reminiscence connected with the time of our adoption of this little contrivance. It proved our imperfections, as well as its excellence. One after another, by a sort of fatality, in our notes of the cases of several young and promising patients, we were obliged to erase "bronchitis," "throat affections," and the like, and substitute the more ominous word "phthisis," till at last we fairly dreaded to apply the new test.

In taking leave of this point, it may be well to mention two rules of service in this posture:

First. Direct the patient, in crossing his arms, always to place the right or strongest arm outside, to hold on better. *Second.* In separating and fixing the shoulders, aid him by pushing or pressing them in the right direction with your hands, from behind.

Fig. 5.

V. *Separating the shoulders to the utmost* (fig. 5), *by crossing arms, grasping the shoulder-joints, with the hands pulling strongly, and holding fast, to uncover the lungs behind.*

This is worth all our other suggestions put together. It would seem incredible that so simple an expedient should help us so much. On inspecting a muscular patient, it will be seen, that in the easy position, the trapezius and rhomboid muscles form two rather thick rolls of flesh between the spinal column and the scapulæ. They differ considerably in delicate or stout persons. You will find them thin and easily stretched in the slender clerk, and thick and resisting in the powerful cooper or blacksmith. By the above process, however, they are often flattened out like buckskin. And this is done by machinery, which, like the human hand, is of divine contrivance. The ribs are the fulcra, the shoulder-blades and arm-pits the jointed levers, the fore-arms and hands, the ropes, the cushion-like deltoids the pulleys, and the fingers the tenter-hooks, which slide off the shoulders, and stretch the muscles between them across the back, till, in slender subjects, they seem scarcely thicker than stout broadcloth.

In the above engraving, which is an exact portrait, the two lines of shadow actually form hollows at the edges, or the *inner boundaries* of the two severed scapulæ towards the spine. The subject possessed rather greater power of separating the shoulder-blades than usual, but not so great as some others. An approach to an average will be found by consulting the statement of measurements.

But you must try it on a patient to find its full convenience.

Instead of bony edges and bundles of flesh, there is a wide smooth bed for ear or instrument to range up and down the whole length of the scapulæ. One gets very close to ribs and lungs. The sounds are at once exaggerated. Even in health, and through ordinary clothing, you can readily detect the change. Any physician can easily test this matter. Let him seize the first obliging friend he may chance to meet quietly in his room. Let his learned head rest on the edge of the shoulder-blade awhile, and listen for the soft breezy sound of the breath within; and then shift the bone by the above process, and let his ear lay flat on the ribs in its place, and he will notice a material difference. It will be found that merely sliding away the bone and fleshy obstacles here, often seems nearly to double the respiratory murmur. It is like going from the faint breathing of diseased lung, to the loud "puerile," or, as Andral terms it, the "*supplementary*" respiration of the opposite healthy lung.* In this way there is opened a new and important field.

One object of this paper is, in chest examinations, to direct more general attention to the shoulders. The precautions sometimes incidentally mentioned, of bending forwards, loosely crossing the arms, and the like, though but half measures, are still useful. But even these are too often forgotten. A decided advantage of the new method is, that it increases behind the range both of palpation and percussion. In the former, the jar or "fremitus" of the voice and cough, more distinct over the denser lung, is thus made quite plain, on feeling carefully with the tips of the fingers, and shutting the eyes. Percussion here, it is true, sounds somewhat tympanitic from the tight stretching, but it is far better than the little or nothing by the old method. The *relative* dullness, too, is the same. And you soon become accustomed to the slight modification of sound. You will also thus get very distinctly the "sense of resistance" to the tapping fingers over the denser lung. Sometimes, by percussing carefully along the former bed of the scapulæ, we get slight dullness, even from small nests of tubercles. Of this we have seen many examples. In the case of a young man recently examined, there was only the least shrinking to the eye, and wavy and rude respiration to the ear, under the right clavicle in front; but on turning him round, throwing off his shoulders, and percussing gently with one finger, as for lobular pneumonia in a child, about the centre of the scapular bed, we could, by its dullness, bound a little nodule of tubercular deposit. There is an interesting case now under treatment. A printer, greatly emaciated, and sentenced to phthisis for

* Clinique Médicale.

many months previous to coming under our care, is rapidly regaining his flesh. He has half absorbed pleuritic effusion of the left side with an apparent anomaly along the edge of the left scapula above. It is a *tympanitic resonance* to the fingers, contrasting with the dullness just below, as described by those accurate observers Dr. Williams, M. Henri Roger, and Dr. Flint.* By thus uncapping the lungs behind, there is a special emphasis given to the vocal signs. In a case of pneumonia of the right lung, now convalescent, in Brooklyn, with the claret flush, quick breathing, rusty, sticky sputa, crepitant râle and dullness, we found that higher up and more plainly than usual; we could hear, by this means, the *ring* of "bronchial respiration" and "bronchophony," like the echo of *breathing or speaking in a wet barrel.*

It is particularly convenient, too, in pleurisy, in finding the shaky voice or "egophony of Laennec, and thus determining the "line between wind and water." We have a case in point. In a patient with very large effusion in his right side, now slowly recovering, it has enabled us, for many days, more easily than ever before, to trace with a pencil this line of trembling voice as it has receded, with the subsiding fluid from the level of the spinous process, till it has gradually ceased near the inferior angle.

At the middle of that most affected, and partly covered by the scapula, we get the very best point for comparing the respiration of the two lungs. There can scarcely be the least fragment of tubercle above but it will roughen, obstruct, or deaden the breathing here.

We may be reminded, too, that before they are heard either in front or above, we get usually in this fruitful locality behind, the first *sibilant or mucous* râles of bronchitis. They commence in the smaller tubes. And here we must gently protest against the too sweeping destruction of the nice distinctions of Laennec by Skoda.† Yet we would not detract from the profound and original observations of one who has been termed by his admiring countrymen, the German Laennec. Different observers, like theologians, may believe in the same thing under different names. We admire the simple nomenclature of Latham, arranging the family of rhonchi into large, and small, "*crepitation.*" But we recognize as too useful to be forgotten the more general classification of the dry bronchial râles into sonorous and sibilant; and the moist into large mucous, mucous, submucous, and subcrepitant. With a little vivid

* *Archives Générales de Médecine; Physical Exploration*, etc.

† Abhandlung über Auskultation und Perkussion.

imagination, too, we fancy we can guess at the *size* of the bubbles of the four last. They can be ranged as a sportsman would buck, duck, pigeon and snipe shot.

These better facilities for uncovering the finer tubes posteriorly, have enabled us to add to the various signs of bronchitis still another. It is a kind of *prolonged, loud, liquid breathing*, as if through a layer of wet sponge. We suppose it to be caused by a very slight increase of secretion, on the principle of the fresher notes from a wetted flute. It is heard either before or after the period of mucous râles, usually about the middle of the lung behind. We have ventured to call it *moist respiration*. We have found in a few cases that it has been useful in making slightly clearer a single sign of disease of the heart. It was discovered we believe by a talented pupil of Skoda, the lamented Zehetmayer, whom some of our Vienna friends, now our worthy professional neighbors, will well remember. We speak from memory, as his work is, for the moment, out of print.* He found that the murmur of mitral regurgitation, beyond any other sound of the heart, could be often heard quite through the left lung at the inferior angle of the scapula. Hence, this has become one of the recognized symptoms of this affection.

We close our remarks on this important position, by repeating the cautions given with the last. The right or stronger arm should be folded outside. You must carefully aid the patient to *adjust* the shoulders widely apart; for there is often an awkward kind of shrugging upwards at first. You must help by standing at his back, and pressing on them very firmly downwards with both your hands, so as to slide them over the larger swell of the ribs towards the middle of the chest. And then you may help fix them by passing your hands from behind to his arm-pits, and *pushing* with each thumb against the posterior edges of his spreading shoulder blades.

VI. *Dropping the arms motionless by the side* (fig. 6), *and breathing deeply, to show behind any stiffness of either shoulder, from disease of the lung, on "taking sight" across, or measuring with eye and fingers the vibrations both of the acromion processes and inferior angles.*

From a large number of observations, we have arrived at the general rule, that *on comparing the rise and fall of the shoulders behind, in strong breathing, there is loss of motion over the lung most diseased.* We think this merits the dignity of a new physical sign. That it has

* Die Herzkrankheiten.

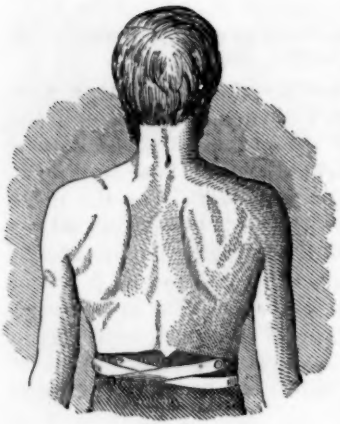

Fig. 6.

escaped the notice of so many eminent observers, has probably been from overlooking the necessary delicate tests. It seems very simple when once it is known. You have only to place the patient, with his back to you, a yard distant between you and a window, or white wall, and tell him to drop his arms by his sides, "as if they were dead," and breathe forcibly for a minute, "as if a little out of breath." By taking a range across the tops of the shoulders, like a rifleman, you readily detect the slightest difference as they vibrate up and down. There is another gauge. If you draw nearer, and let the eye rest on the tips of the shoulder blades below, or technically the "inferior angles," you will find that they gently play with the movement of full breathing, like the fins of a fish. There is still an elegant device in our aid here. If we separate the two index fingers, and let them rest lightly as pointers on these two angles, we shall make their gently gliding motion more apparent, and thus detect the least halt on either side, even through a lady's clothing as she sighs. The movement is not only seen, but *felt*. By a new application, palpation becomes the auxiliary of inspection. The sense of feeling, if rightly used, can also help our sight at the highest point above mentioned. We may imitate the delicate touch of the blind, by shutting our eyes as we lay the sensitive pulps of our fingers on the acromion processes, and feel even a shade of difference in the upward sighing swell of the shoulders.

The patient may possibly be a little awkward at first, and need a few moments' practice. In right-handed persons, too, as is well known, the whole favorite extremity excels the other slightly in size and strength. We have found that in health the right shoulder has usually a shade more of motion in violent respiration. And in accurately comparing, just as in measuring with the tape, the two sides, for bulging or contraction in pleurisy, we must make a little allowance on the right side for this natural excess.

Curiously enough, there is considerable variation in the relative stiffness of the top of the shoulder and the inferior angle of the scapula below, in different cases. In several instances,

this has appeared to depend on the *location* of the disease. *It seemed to paralyze, as it were, the parts nearest.* If, for example, a small bed of tubercles was found at the extreme apex of the lung, the stiffness would be mostly *acromial;* but if they happened to be near the middle of the lung, it would be more angular. When the lesion was limited and very deep or low down, the shoulder would be but slightly or not at all affected. The loss of motion was considerably increased by duration. Recent cases of pneumonia made the least change. The greatest variation occurred in the progress of phthisis. Very slight tubercular infiltration would sometimes lessen to the watchful eye the upward rising of the shoulder, posteriorly; but as softening, cavities, contractions, and adhesions successively followed, the halt in its movement became more and more apparent.

Most of the physical signs, as Dr. Addison has ably shown, have occasional exceptions and anomalies.* But, especially in phthisis, we have found this as reliable as the majority. In our experience, it has been a much more constant symptom of this disease, than any other sign discovered within the last fifteen years—more uniform than the red margin of the gums, or "festooning," presented by that distinguished observer, Dr. Theophilus Thompson.† And, after all, it is only by the careful summing up of all the evidence, rational and physical, that we are justified in a conclusion.

In large pleuritic effusion, of considerable duration, there seemed the most powerful combination of agencies to fix and paralyze the shoulder. Here the stiffness was most complete.

Were it possible, with Dr. Hutchison's spirometer, to measure the "vital capacity" of both lungs *separately*, the loss would be on the diseased side. The passive shoulders rise and fall in strong breathing just like two weights hung on two pairs of bellows, moving together side by side. If one only is a little spoiled it will not inflate so much, and the weight upon it will not rise so high as the other. This motion, then, is mainly from the alternate filling and emptying of the lungs beneath. If bronchial tubes are obliterated, if tubercles, hepatization or effusion encroach upon the spongy lung, there must be less expansion upward. To this principal cause we may add auxiliaries. There are the stiffening of the walls from pleuritic adhesions; the partial paralysis of the thoracic muscles from the tenderness so often present; and, lastly, the increased weight of many morbid deposits.

We subjoin a table of cases in which the shoulders became thus fixed by disease, with some of the other symptoms.

* Guy's Hospital Reports. † Lectures on Consumption.

A table of eighteen cases of Chest Diseases, in which Stiffness of the Shoulder on forcible breathing was seen from behind

No. Occup'tion and Age.	Disease and duration.	Some other Signs or Symptoms.	Lung most affected and probable Lesion.	Shoulder, Stiffness and Remarks.
1 Bookbinder 27	Phthisis 10 Months.	*Right lung: top, front* and rear, prolonged expiration. *Left lung: front*, for two inches below clavicle, depression, dullness and *fatty crackling*. *Rear top, fatty crackling*, with shoulders separated, vocal and tussive fremitus.	*Left lung*, softening, tubercles at apex.	*Left shoulder*, decided stiffness.
2 Tailor 37	Phthisis 2 yrs and 9 months.	*Right lung: healthy. Left lung: front, below clavicle*, depression, stiffness, dullness, *cracked metal sound*, cavernous respiration; *pectoriloquy, jar of voice* and cough. *Rear*, wavy respiration. No. 4 gave more distinct cavernous respiration.	*Left lung*, cavity beneath c'ntre of clavicle	*Left shoulder*, decided stiffness.
3 Laborer 36	Phthisis 8 months.	*Left lung:* healthy. *Right lung: front, below clavicle*, stiffness, shrinking, dullness, prolonged respiration; *faint fatty crackling*, bronchophony, stronger vocal and tussive fremitus *Rear, faint fatty crackling*. Dullness with No. 5.	*Right lung*, softening, scattered tubercles at apex.	*Right shoulder*, slight stiffness.
4 Laborer 36	Pleurisy 5 weeks.	*Left lung:* healthy. *Right lung: side*, intercostal spaces flat; some bulging. decided *dullness* and resistance, friction sound at the nipple. *Rear*, dullness, friction sound at the inferior angle of scapula.	*Right lung*, receding effusion.	*Right shoulder*, decided stiffness, most at angle felt and seen.
5 Tailor 40	Phthisis 9 months.	*Left lung:* healthy. *Right lung: front, below clavicle*, stiff, hollowed, dull, resisting; *respiration* harsh, suppressed. *Back*, dull, with No. 5 *fatty crackling* extending to rear inferior angle; tussive fremitus.	*Right lung*, tubercles behind near the middle.	*Right shoulder*, slight acromial, decided angular stiffness.
6 Porter 27	Pleurisy 12 days.	*Tongue with white fur;* appetite poor; *pulse* 120; sharp, respiration 28; measurement, *right* 18 inches, *left* 17¾ inches (has had old left pleurisy). *Right lung:* healthy. *Left lung: front and side*, ribs stiff *below nipple*, flat, bulging, dull. *Egophony.*	*Left lung*, pleuritic effusion to nipple and inferior angle.	*Left shoulder*, stiffness more angularless acromial seen and *felt.*
7 Laborer 32	Phthisis 3 months.	*Right lung:* healthy; puerile respiration. *Left lung: front below clavicle*, stiff, shrunk, dull, resisting; respiration blowing; moist *fatty crackling. Rear*, some fatty crackling down to middle of lung.	*Left lung*, apex extensive softening, tubercules.	*Left shoulder*, decided stiffness, both acromial and angular.

No. Occup'tion and Age.	Disease and duration.	Some other Signs or Symptoms.	Lung most affected and probable Lesion.	Shoulder, Stiffness and Remarks.
8 Clerk 23	Chronic pleurisy empyema 21 months.	*Tongue* clean, appetite fair. *Pulse* 96; *respiration* 26. *Right lung:* healthy; puerile respiration. Measurement, *right* 16¾ inches, *left* 17 inches. *Left lung: front and side* flat, bulging, stiff, dull, resisting; abscess from former operation. *Rear, low down*, flat, dull.	*Left lung*, pleuritic effusion to nipple and inferior angle.	*Left shoulder*, very decided general stiffness, seen and felt.
9 Clerk 20	Phthisis 3 months.	*Left lung:* nearly healthy; only slight bronchial sibilus. *Right lung: front below clavicle*, dull, resisting, bronchophony; faint *fatty crackling* to 3 inches below; vocal and tussive fremitus. *Back*, apex dull, fatty crackling, fremitus.	*Right lung*, softening tubercles 3 inches down.	*Left shoulder*, decided stiffness, more acronical, seen and felt.
10 Errand-boy 15	Phthisis 3 years.	*Right lung:* healthy; puerile respiration. *Left lung: front, below clavicle*, stiff, shrunk, dull, resisting; *fatty crackling* for 2 inches down; bronchophony; *heart* sounds transmitted; vocal and tussive fremitus. *Rear top*, dull, fatty crackling.	*Left lung*, softening tubercles 2 inches down.	*Left shoulder*, slight stiffness, more acromial, seen and felt.
11 Cooper 19	Phthisis 2 years.	*Right lung:* nearly healthy, wavy respiration. *Left lung: front top*, slight depression and dullness, jerking respiration; faint, *fatty* crackling for 2 inches below clavicle. *Rear*, faint crackling above.	*Left lung*, softening tubercles lowest behind.	*Left shoulder*, quite stiffened seen and felt.
12 Peddler 24	Pleurisy 3 days.	*Pulse* 84; firm respiration 32; tongue whitish. *Right lung*, healthy. *Left lung:* stitch in side. *Rear*, shade of dullness, bronchophony, *grazing sound* the size of a dollar at base.	*Left lung*, roughening membrane, "Dry pleurisy" behind	*Left shoulder* stiffness slight, most angular, seen and felt.
13 Boat builder 38	Pneumonia 4 days.	*Face* dusky, claret-flush; *tongue* whitish fur; *urine* small, high colored; *pulse* 116, full; *respiration* 32; *sputa* rusty, tenacious; cough severe; pain at right nipple. *Left lung:* healthy. *Right lung: front, base dull, resisting. Rear* middle, bronchophony, bronchial breathing, *crepitant râle; base* dull.	*Right lung*, hepatization.	*Right shoulder*, slight stiffness.
14 Laborer 25	Pleuro-pneumonia 3 weeks.	*Pulse* 90; full; *respiration* 28; *sputa* viscid, whitish, tongue cleaning. *Left lung:* healthy; free puerile respiration. *Right lung: side* stiff, less furrowed; respiration absent. bronchophony, dullness, resistance, *Rear:* base dull, *sub mucous râles.*	*Right lung*, pneumonic hepatization, some effusion.	*Right shoulder*, moderate stiffness
15 Widow 40	Phthisis 17 months.	*Left lung:* healthy, *puerile respiration. Right lung: front*, below clavicle for 2 inches, *shrinking, hollowing* stiffness, dullness, resistance, moist *fatty crackling*, bronchophony, vocal and tussive fremitus. *Rear*, from apex to inferior angle slight dullness (No. 4) fatty crackling fremitus.	*Right lung*, softening tubercles at apex, farthest down behind.	*Right shoulder*, decided stiffness both seen and felt, both acromial and angular.

No. Occup'tion and Age.	Disease and duration.	Some other Signs or Symptoms.	Lung most affected and probable Lesion.	Shoulder Stiffness and Remarks.
16 Policeman	Empyema uncertain.	*Pulse* 116; *respiration* 32; *tongue* clean; measurement: right, 17 inhes, left, 18 inches. *Right lung:* healthy, puerile respiration. *Left lung:* roundly bulging at left nipple; *side* flattened intercostals, stiffness, complete dullness of whole lung; respiration silent; *heart pushed* to right of sternum, near the nipple.	*Left lung*, very large, pleuritic effusion.	*Left shoulder*, complete stiffness, acromial and angular.
17 Peddler 29	Phthisis 18 months.	*Right lung:* healthy. *Left lung: front, below clavicle* for 2 inches, shrinking; flattening, slight dullness, resistance; *fatty crackling*, tussive fremitus; voice whispering, broken, coarse. *Rear*, harsh respiration, wavy, weak below.	*Left lung*, small softening tubercles high up.	*Left shoulder*, decided stiffness, more acromial, seen seen and felt.
18 Unmarried 21	Phthisis 7 months.	*Right lung:* nearly healthy, respiration rather *rude*. *Left lung: front, below clavicle*, flat, shrunk, hollow near centre, quite stiff; distinct *cracked metal sound*; dull around, resistant; *amphoric respiration; pectoriloquy, fatty crackling around cavity, heart sounds transmitted. Rear, top*, faint *crackling*; wavy respiration dull, fremitus.	*Left lung*, cavity beneath centre of clavicle.	*Left shoulder*. marked stiffness, more acromial, felt and seen.

It will be perceived that in this table it was not deemed essential to crowd in all the particulars. Only in a few more acute cases, for instance, were the "rational signs" given.

From our rejecting a list of earlier cases, in which we had not noticed specially the features of "acromial" or "angular" stiffness, there is an accidental predominance of males. Only two cases, No. 15 and No. 18, were females. This happened from the fact, that our service on the male side of the house, in "diseases of the chest," in our largest Dispensary in the city, afforded a more ready supply from this class. It rather does injustice to the sign itself. For we have long observed that stiffness of the shoulder, from diseases of the lung beneath, is more readily detected, and is less apt to be disturbed by powerful muscular action in females and delicate males than in the more robust. The patients happened to be all right-handed.

This table might be indefinitely extended. For, with care, the sign may be found, perhaps, in ninety-five out of a hundred cases of phthisis, pleurisy, and pneumonia. In bronchitis, involving pretty equally both lungs, we would not, of course,

expect to find a feature which depends entirely on the principle of the comparison of a diseased with a more healthy lung. Those who have not the leisure to study the whole, will catch its most interesting points by running the eye over the two last columns.

We have a few more statistics. Whenever it can be fairly done, even in a slight degree, it seems desirable to bring the calm certainty of mathematics to the aid of medicine. Without teasing the reader with too long an array of figures, we may here give some measurements of ten male subjects, mainly illustrating positions Nos. 3, 4, and 5. In a matter not of vital importance, it did not seem right to trespass on the kindness of sensitive females. Yet, to make the calculations approach more nearly to the uniform standard for both sexes, a class of males rather below the ordinary size was selected. There was considerable variation in the distance which individuals alike in figure could separate the shoulders.

Of course, this statement is only a fair approximation. A little stretching, more or less, by other observers might slightly increase or diminish these numbers. And if great accuracy were really required, a much larger table of both sexes would be necessary.

STATEMENT OF AVERAGE DISTANCES BETWEEN CERTAIN POINTS OF THE BACK IN TEN MALES, RANGING AT ABOUT FIVE FEET EIGHT INCHES IN HEIGHT.

Transversely between the superior angles of the scapula.—Position No. 5, or widely separated, 7.38 inches; No. 6, or "easy," 5.19 inches; gain 2.19 inches; No. 4, or with shoulders depressed, 6.77 inches; gain by No. 5, 0.61.

Transversely between the inferior angles of the scapula.—No. 5, or widely separated, 8.91 inches; No. 6, or "easy," 6.01 inches; gain 2.90 inches.

Obliquely from the vertebra prominens of the neck to the superior angle of the scapula.—No. 4, or "depressed" position, 4.53 inches; No. 6, or "easy," 3.67 inches; gain 0.86 inches.

Obliquely from the spinous process of the lowest lumbar vertebra to the inferior angle of the scapula.—No. 3, or high elevation of shoulders, 12.04; No. 6, or "easy," 10.34; gain, 1.70 inches.

Decided as the advantage of these various stretching processes is thus proved to be in theory, the above figures hardly do justice to the matter in practice. It requires actual experiment. The advantage between placing the ear or instrument on a round, thick muscle an inch wide, and a flat thin one, of

two inches wide, can hardly be measured by a mere mathematician so well as by a physician.

In conclusion, to the professional friends who have publicly or privately, doubtless in good faith, questioned the *originality* of these plans, we have with equal courtesy, just a word of reply. When they will point to the passages fairly describing them, possibly overlooked in our review, we will gladly make honorable restitution. The "second position" was admitted to be common from the first. In adopting all the rest, we must still believe we have been copying no other physician. We have searched for them in vain, in all the authorities within our reach, down to one of the most recent, that of Wintrich, in the excellent series of Virchow.*

But the question of their origin is really insignificant, compared with that of their *usefulness*. Here we have tried them too faithfully to be mistaken.

The most reliable of all the physical signs in "exclusion," and the most certain proof of healthy lungs, is a *pure symmetrical* RESPIRATORY *murmur* heard throughout their entire texture. Even in the most hurried examinations, there are four points alone where this welcome, soft, breezy sound—neither too faint nor too harsh—can usually decide the question. On these we instinctively first place our ears. In lectures to students, we have informally described them by a highly figurative expression convenient to remember, as the "Four corners of the chest." They are the handsbreadth *below* the two clavicles on each side in front; and the same spaces *above* the inferior angles of the two scapula behind. On carefully experimenting with the new "positions," here recommended, it will be found that they aid us most in these important localities.

Again, from infancy to old age, the unfavorable result of measles, small pox, and typhus, and other fevers, is very often decided by the occurrence of pulmonary inflammations. Adding these complications to the formidable list of diseases of the chest already described, it seems probable that the simple facilities here offered, may throw more or less light upon *one-third of the fatal maladies around us.*

The most destructive of all these is consumption. It more than decimates, in their prime, all ranks and conditions. The sweetest consolation of these labors, is the thought that they may be most useful in warning us earlier of this most stealthy of diseases. Our dearest hopes centre here. Its terrible importance may excuse our repeating an oft-told tale. It may

* Krankheiten der Respirations Organe.

serve the younger students of the profession; and even with the most intelligent practitioner, the strongest point in the argument rests upon the familiar facts we are about to mention.

Grave physicians themselves sometimes see only the darker side of this question. They look placid before patients, but tell us in confidence we can do nothing but soothe. Those "new lights," the "physical signs," they say, are often fallacious. And finally, they ask despondingly: "Of what use is nice diagnosis or curative treatment, when the disease is so surely fatal?"

One by one, let us briefly weigh these questions. Human life, in medicine as in law, demands that we shall fairly sum up the evidence. We hope to prove that here, as elsewhere, "knowledge is power." Let us suppose that before you, on trial, is a suspected consumptive. On scanning your subject, from one to many well-known marks may be wanting. But there may be either a slender form with a narrow chest or features, ashy, pale and homely, or perchance chiselled and colored, as in waxen beauty; lustrous eyes, with long lashes; hair silken or dry, and generally thin; teeth white and frail, and possibly festooned with a red line at the gums; long lean fingers, with nails hooked forward; or occasionally a neck seamed with the scars of scrofulous childhood. *All these, in nature's language, mean simply a feeble organization.* And this, we know, may be either inherited or acquired. Many or few near relatives may have died in the same way. But the records of the Brompton Hospital cheer us with the proofs that the share of family taint in the mischief is not so great as some have dreamed.* Only the weakest lambs even of a delicate flock are commonly taken. Hospital statistics tell us, too, that the males even of these consumptive families, by freer exercise in the open air, have two chances to escape, to one of sedentary females.

But more frequently a frail, or even a good constitution, is lowered to the level of consumption by depressing influences. For the sake of a coming argument, let us study these. Now and then a complaining or dissipated subject has inhaled the insoluble dust of the knife-grinder, the stone-cutter, or the blacksmith, till weak lungs can bear it no longer. But more commonly the rich have grown dyspeptic, and the poor have starved. The hard student has overworked his brain to rob his stomach; the merchant, in his early struggles, has devoted

* Eighteen per cent. of the males, and thirty-six per cent. of the females reported consumptive parents.—*Report of* 1849.

ten minutes to dinner, or forgotten it; or a thin, nervous book-keeper has for years narcotized digestion with *tobacco*. Some journeyman tailor has spent weeks of fasting, nights sitting like a Turk on his board; or an ambitious clerk, from a home of plenty in the country, has come to pine on a slender salary in a city warehouse, till, like the caged monkeys of Paris, he emaciates with tubercles. Or, like a gentle departed spirit we once knew, a rigid vegetarian, forgetting his mother's milk, his own canine teeth, and the great fact that the race in mercy pass through "*omnivorous*," from the pole to the equator—has actually wilted, like a plant, with the strange fancy, that eating flesh is the "root of all evil."

"Extremes meet." A fine lady in a splendid mansion, who neither "toils" nor "spins," but lives largely by gaslight, loses her relish, and wastes away suspiciously; while a poor widow, weakened by watching the sick departed, in a neighboring garret, at the same midnight hour, is silently acting the "song of the shirt," with a "hacking" accompaniment, till hunger is drowned in grief. Imprisonment, and sorrow, and want together tell fearfully. Early and late, in all weathers, a slender orphan girl, gliding past like a dark spectre, bashfully veiled, and too virtuous to sell soul and body for more, thus toiling for the barest decencies of better days, has lived on *bread and tea*, till a hollow cough tells she will soon enter the close, dusty work-shop no more forever.

In a word, on careful study we discover that in all its various forms, the prevailing cause of consumption *is depraved nutrition*. It is from poor chyle, converted into impoverished blood, that *within* the meshes of the lungs, according to Laennec, or *on them*, by the theory of Carswell, we have deposited the fatal sediment of tubercles. And this bad nourishment, again, may from an inherited weak frame, poor food, or no stomach to eat it, prostration from *foul or dusty air*, grief or mental depression, excessive study in active confinement, or few or many of the agencies pictured above. In the name of the physic of two thousand years, can we not do something to arrest these? We can. From the "marks" enumerated and the family history, we can often fortify hereditary consumptives long in advance, and ward off threatened attacks. But, with the predisposed and all others, at the first warning, the spitting of blood, tickling cough, wasting or faint "physical signs," we must promptly reform all these abuses. It is time to bring up all our forces. Thousands thus sin against the laws of health unconsciously. *Especially will they deny a feeble appetite or trashy diet.* All the antecedents must be known, and the whole life regulated.

Dust, foul air, killing study, pining grief, domestic imprisonment, bolting, tobacco, and starvation must in mercy be promptly forbidden. The two great elements to be secured are, *generous food and fresh air.* We must get of these all we can. It must be frankly stated, that life itself may depend on good dinners, and time to eat them. At any sacrifice in other things, these should comprise, if possible, as staples;—fresh beef and mutton, as variations;—poultry, game, and other digestible delicacies, either to be followed by farinacious articles, rich milk or *cream*, and ripe fruits instead of pastry as dessert. The best caterer is here usually the best physician. In this fearful malady, eating may often be aided by taking, for the "stomach's sake," those questionable luxuries in health, the purest ales and wines. But, to borrow the colloquial phrase of a friend, the greatest "*appetizer*" of all, is regular *exercise in the open air.* Yet consumptives are very sensitive to sudden changes. All must be clothed in flannels next the skin, and well shod. We must prescribe even for fine ladies high rubber boots, and umbrellas for damp days; tell them to keep dry, not to go out fasting, or remain chilled, and they may gradually defy three-fourths of the weather.

With plenty of bed-clothes, even the distant sash of a close bed-room may be lowered, half an inch at night. With the poor, or with most persons in crowded, paved cities, daily walks, lengthened with increasing strength, are an excellent substitute for riding on horseback, so serviceable in this affection. Remarkable recoveries occasionally follow sudden reforms. Pale clerks, coughing and wasting, sometimes leave St. Louis and western cities, to sleep out on the prairies, finally to hunt buffaloes, and fatten on them, and return quite restored. Nearly two hundred years ago the great Sydenham wrote quaintly: "But of all the remedies for phthisis, long and continued journeys on horseback bear the bell." And it is mainly for their facilities for winter exercise, rather than anything specific in warm air, that we prize for these tender invalids the sunny deck, on a tropical sea voyage, the balmy shores of the milder West Indies, or the perfumed pineries of Florida. But more than we dream can be accomplished at home. Consumptive stonecutters or blacksmiths must be told, if they continue the business they will surely die. Dr. Beddoes, in the last century, wrote a book to prove, that butchers, rising early, living well, and keeping with their merchandise in cool, pure air, were remarkably exempt from this disease, and he was right. Young persons frequently can change to more healthy callings. But with the poor we must often kindly compromise. The slavish clerk or student may compensate for

confinement, by better living and longer walks night and morning.

Wonderful sacrifices will sometimes be made by patients for a frank, honest medical adviser, and for precious life. We knew a physician who wrote on the fly-leaf of his "diary" as a motto: "With the blessing of Providence, I can always afford to do right." He said it cost much study, toil, and charity, and withheld all medicines he would not take himself; but brought in return, sweet sleep and a quiet conscience, and slowly but surely, a competence. When he was young and poor, he once said to a rich lady with a train of carriages: "Ride only in rainy weather, and average a certain number of miles in a day in walking on foot, or I cannot attend you." He lived to get a present above his fees, and she lived to thank him years afterwards. We commend the deep moral of this story to all who treat consumptives. The great temptation, is to *medicate* with opiates and nauseating cough mixtures, till the feeble stomach is spoiled, and *manage* with powerful natural agencies too little. Yet we would not disparage the valuable aid of iron, delicate bitters, or the hypophosphites as tonics or correctives, or the local application of the solution of the nitrate of silver for the occasional laryngeal complications. Especially from a faithful trial of years, do we prize cod-liver oil, which, by a law in animal chemistry, seems to supply at the critical moment a needful element in the defective nutrition.*

These remedies are all well known to the profession. Our object has been, from this rapid survey of the ground, to show a prevailing deficiency in management rather than medication. And we close this point by an appeal to those medical friends who "never succeed," whether with an energy and perseverance equal to the fearful crisis, they have searched out these causes, and enlisted all these auxiliaries?

Our space allows but a few words to the rapidly diminishing skeptics in diagnosis. Even the most ancient never question the rational signs. They doubt not, as characteristics, the cough first dry and tickling, then moist or hollow; with sputa ranging from scanty and pearly, to abundant round yellow or greyish masses, floating in clear frothy mucus; or the hæmoptysis, now but a stain, and then deluging the sufferer with blood. Nor do they deny the wandering, pectoral pains and dyspnœa; enchanting night sweats; a teasing diarrhœa towards

* The reader is referred for medical, and other strong testimony in favor of this agent, to the reports and various contributions from the Brompton Hospital, for consumption, and to the works of Drs. Hughes Bennett, Walshe, Blakiston, Wood of Philadelphia, and others.

the last; and the quick evening pulse at the commencement, running gradually into the well known hectic fever, with first but a delicate blush, which, near the close of the scene, brightens like a spot of rouge on a haggard face, reminding you of the poet's strange fancy on the lips of a vain dying woman:

"And Betty give this cheek a little red."

The honest physician, equally with the faithful advocate, dares not neglect any available witnesses, in a trial for life. All must be questioned. But the physical signs as they are called, are, in fact, the most reliable of the two classes, for they depend not on mere functional derangements, nor on the varying sympathies of other organs, but upon actual changes in the structure of the lungs themselves. The post mortem explains them all.

As the chest is opened, the pleuritic adhesions and comparative collapse at the top of the lung most diseased, throw light on the stiffness, shrinking, and hollowing seen outside long before on "inspection." And then the lung, like a church organ, changes its music with every alteration inside. A fragment, with fine scattered tubercles, demonstrates how the first crowding or obstructing of the small tubes may produce "prolonged expiration," or wavy, harsh or suppressed breathing. Light spongy lung, injected with solid matter, naturally becomes more heavy, and a *better conductor* of sound. Hence, as we cut into a denser portion, thickly studded with grey or yellow tubercles, we can understand why, in life, they caused "dullness," and a sense of resistance on percussion, and why they communicated a more intense thrill of the voice of "bronchophony" to the ear, and of "fremitus" of the cough and voice to the fingers. Irregular masses of softening cheesy tubercles here and there produced the "fatty crackling." A cavity from which these same tubercles have been expelled, was a regular music box. Half filled with fluid, it caused "gurgling;" nearly or quite empty, it gave the blowing "amphoric," or less musical "cavernous" respiration; reverberating little drops or bubbles, it produced "metallic tinkling;" when its walls were struck with the mouth open, it emitted a "cracked metal;" sound, and lastly, when, with a neighboring bronchus, it formed a *speaking tube* of lung, it conveyed to the listening ear the shrill piping voice of pectoriloquy. The veriest skeptic can scarcely resist this simple lesson by nature herself in the philosophy of these sounds.

Finally, to the "*fatalists*," who believe that all must die in phthisis, and that diagnosis and treatment avail but little, we may say a word of the changes of thirty years. Men no longer

innocently cage and kill consumptives. From the crotchet of inflammation and its bleeding, antimony, and digitalis, we have gradually veered to fresh beef, fresh air, and cod-liver oil.

Again, the "cretefaction" of Rokitansky, or drying up of tubercles to shreds of chalk, amid the puckerings and scars of extinct tuberculous cavities, is discovered to be quite common in the aged. Of those ranging about seventy years, Messrs. Rogée and Boudet found that these chalky concretions occurred among the inmates at Salpétrière in one-half. Dr. Hughes Bennett having instituted a similar series of observations in Edinburgh, estimated the proportion in those dying above forty, as from one-third to one-half. This is hopeful. The last author, in his recent lectures, gave a drawing of one of these cicatrized cavities in a man aged 55, who died of delirium tremens, and who, by generous living, had recovered from an attack of phthisis many years previous. Though death is still the sad rule, in ordinary cases, yet these exceptional cases are more and more frequently reported. Our facts may live when our theories perish. We present here the briefest synopsis of four illustrative cases, from among several less marked. They show the importance of that decision and *thoroughness* for which we have contended.

Case 1.—*Tubercular infiltration—Recovery—Well* 8 *years after.*—Miss ——, of New York, aged fifteen, very slender, *the only child out of five, not dead of consumption*, having coughed, and lost flesh for several weeks, consulted us in October, 1850, in great alarm. She had a bright, sunken eye, some fever at evening, pulse 120, and a dry, teasing cough. Beneath her right clavicle were slight hollowing, moderate dullness and resistance, harsh respiration, prolonged expiration and bronchophony. She was ordered to be well aired and protected walking and sleeping; to be *educated to walk several miles a day*, to take cod-liver oil and iron, and to live most generously. Her circumstances being easy, these directions were obeyed to the letter. In three months she was discharged greatly improved. At the time of writing, eight years after, she is reported in excellent health, having married, and become the mother of two children.

Case 2.—*Tubercular infiltration—Some throat symptoms —Well nearly three years after.*—Miss ——, of New York, aged twenty-two, a delicate blonde, rather anemic, of healthy parents, applied to us in June, 1856, with a red, granular throat, tickling cough, and loss of flesh. Gradually there were developed a little later, beneath the right clavicle, stiffness, hollowing, some dullness, prolonged expiration, harsh breath-

ing, bronchophony, and distinct vocal and tussive thrill. She was liberally supplied with everything needed. Iron, nux vomica, ale, cod-liver oil, nitrate of silver, and astringent gargles to the throat, long walks and the best living having failed to relieve, she sailed in January for Enterprise, in the interior of Florida. She was a model patient, exercising and eating to her utmost, and bravely obeying orders. Long rubber boots, long rides and lively sports were practised to perfection. She soon forgot her cough in merry laughs, on the lake, and in the pine woods. Returning north in June, quite restored, she soon after married. She is now the mother of an uncommonly vigorous child, is free from cough, and enjoys better health than for years previous.

Case 3.—*Softening—Cavity—Hæmoptysis—Well nine years after.*—Charlotte ——, aged eighteen, blonde, very frail looking, having just lost her father with phthisis, consulted us from Brooklyn, in February, 1850, for cough, spitting of blood, hectic, and night sweats. On examining the chest, we found distinct "fatty crackling," and other signs of softening tubercles, from a spot the size of a dollar just beneath the centre of the left scapula behind. She was ordered to change her poor living at once, to take, regularly, long walks, with iron, a few drops of tincture of nux vomica for her delicate stomach, and cod-liver oil. In a few weeks, just at the centre of the bed of tubercles, there came the cavernous breathing, and pectoriloquy of a cavity. Changing her diet to the richest food, she soon gained in flesh, and all the symptoms. She married eighteen months after. On careful examination, but a few days before writing this, there was not the crackle of a tubercle in either lung, only a little smooth blowing sound behind, over the old cavity. She was comparatively fleshy, and said she "was never so well."

Case 4.—*Cavity—"Pectoriloquy"—Hæmoptysis—Well eleven years after.*—Dr. ——, aged about thirty years, pale, emaciated, and coughing—sometimes blood—was commiserated by our American friends in London, early in 1848, as fast sinking in consumption. While practising in a city near New York a suspicious cough had attracted his attention, and Dr. Watson, now the worthy president of "our Academy," had found "pectoriloquy" and a "cavity" in his lung. Drs. Swett and Clark had confirmed this. Rallying from despair, he had embarked for London, where we met him. He was still an enthusiastic student, and we could hear him cough, and see his haggard face at every hospital and medical gathering. Subsequently, he saw that eminent chest-physician, Dr. Stokes, of Dublin, who agreed with the former opinions, and urged him to keep

on the sea for a time, and live on the choicest beef and mutton, and drink the best porter. He thus voyaged across the Atlantic for several years, lost his cough, and grew very stout and ruddy. He is now perfectly well, and is a distinguished professor in the West. We are sure his kind heart will excuse this instructive history for the good of others.

And this seeming excursion, and these cases bring us back with a redoubled force to the keystone of our arch, the great question of this paper. If we can thus constantly recognize both the *causes* and *symptoms* of phthisis—if, by improved *treatment*, it is occasionally cured,—*how much greater success might we attain, if, by this system of "management of the shoulders," or any other means, we could average, say, three months earlier notice?* Time only can tell. We call for volunteers in this search. As a parting request, we ask each physician who reads this, faithfully to examine by its plans, at least THREE FAIR CASES, and further, to help in devising something better. The field of "diseases of the chest" is large enough for all who will aid in its cultivation. To its able representatives in our three medical colleges, and others, we feel indebted either for friendly offices, or the example of untiring zeal.

Calm and even mathematical as this discussion has been, we approach its last words with unfeigned emotion. Deducting young children, how fatal still is phthisis! From eighteen to thirty-five, says Hippocrates; from twenty-five to thirty-five, says Brompton Hospital—just the seed time of useful life—is its sad harvest. No malady so pinches the poor. None brings the pawnbroker so many warm garments from shivering woman, or fills his drawers with so many wedding rings, to buy the last delicacies to sustain lingering life. It is full of bitter memories to the physician. For it tells him of imploring looks answered by forced smiles with a heavy heart; of arms folded in despair, and blasted hopes. Perchance, as with us, it has struck down the noblest of kindred or friends. For it chooses the brightest and best, the gentlest lambs of every flock. And the lessons of triumphant faith, the smiles on pallid lips, the dying counsels, and looks of love they gave, made us but miss them the more. For they who are most ready to die are most worthy to live.

Deeply have we longed to throw a single ray across this gloomy path. It will be for our brethren to say if we have succeeded. We close, by assuring them of our sincere conviction based on extended trial, that these simple expedients of *thinning*, *condensing*, and *stretching* the walls of the chest, as described, *add fully one-third to our means of detecting the earliest signs of consumption.*

SUMMARY.

1. That remembering the great value of many reputed "little things," in the science of saving life; and that the chests of *lean* persons give clearest sounds, and are best marked—we may seize this hint from nature, and increase the "physical signs," by either lessening or removing more especially those principal natural obstacles, the great pectorals in front, and the two scapulæ and their muscles behind.

2. This may be affected by using the arms as levers, and the hands as hooks to pull. The process, in each case, involves three principles—*thinning, condensing*, and *tightening*. It is illustrated by the simple experiment of placing one forearm of a muscular man behind his back, while the other hangs loosely by his side, when the sound, especially of percussion, will be found heightened below the clavicle of the stretched side in front.

3. That the suggestions here offered are not fanciful theories, but the results of practical observations on several hundred patients in private, and in two large Dispensaries, during the past year. The drawings, too, were copied from nature. To throw back the shoulders, and bare the whole front, we need the "*first position.*" It is a repetition of the above experiment with *both* arms. *The left wrist is simply held easily with the right hand behind the loins.* This has many little advantages in obscure cases. It gives symmetry, gets rid of the arms, and fits the coat of flesh closely, like a bandage, for "inspection," makes it tense to increase the resonance of delicate percussion, and *conducts* better the sounds within. It thus aids in distinguishing the more difficult cases of tubercles, pleurisy, pneumonia, or aneurism.

4. That the "second position" is the common one of locking the hands over the head to examine the axillæ, and is mentioned to avoid omission. The *third position* crosses the arms at the back of the head, with the hands grasping near the elbows, so as to *hoist* the shoulder blades high up behind, and *thin* the muscles, to search for obscure or limited pleurisy or pneumonia low down near the diaphragm posteriorly.

5. It is very important early in suspicious cases of cough, to examine carefully the *tops of the lungs behind.* For without any distinct signs in front, consumption, often thus mistaken for a mere throat affection, begins here. A few scattered tubercles are apt to *burrow*, as it were, beneath the top of the shoulder. Here we need the "*fourth position.*" For this the patient crosses arms in front, slightly stooping, *hooks* the hands at the loins, or false ribs, and then stretching upward, he holds fast to increase the tension. The physician aids from behind, by pressing down firmly the shoulders. They are thus *slid off*, the muscles are smoothed down, and the ear, coming closer upon the top of the lung, hears better the sounds.

6. *As worth more than all the rest*, we commend the "*fifth position*," for by natural machinery it wrenches the shoulders forward *out of their beds*, and widely severs them in the rear. In thin persons it often thus stretches out their intervening muscles till like stout broadcloth, it thus quite uncovers the inner and upper part of the lungs behind. To accomplish this, the patient crosses arms in front, with the stronger outside, grasps with the opposite hands the *two shoulder joints*, pulls both strongly, and holds fast, to keep them tense. The physician aids to fix the shoulder blades widely apart at the back by firmly pushing. Even in health, as any one can prove, the soft breathing murmur at the former place of the scapula can be thus nearly doubled. In tubercles it here opens a new field for *palpation*, and especially for *percussion.* It intensifies harsh respiration, or "fatty crackling." In pneumonia, it exaggerates the clear, barrel-like echo of "bronchophony," and in pleurisy that line between wind and water, the trembling "egophony." It brings out a delicate *new sign*, we have discovered, in bronchitis. It is a kind of prolonged liquid breathing, as if through a layer of wet sponge, heard before or after mucous râles, which we venture to name *moist respiration.*

7. Another new and really useful "physical sign" we have to communicate, is *the comparative stiffness of the shoulder over the lung most diseased, in strong*

breathing, seen and felt from behind. For this we may use the "*sixth position.*" Facing the back of patient, a yard distant, near a window or white wall, you tell him to drop his arms, let them hang easily by the sides. "as if dead," and then breathe deeply for a few moments, "like a man a little out of breath." You now "take aim," like a rifleman, across the tops of the shoulders, and then shut your eyes and *feel* them gently swell. Drawing nearer, you notice that the "inferior angles" of the scapulæ move gently in breathing like the fins of a fish. You can both *see* and *feel* this movement. This *stiffness* of the shoulder in breathing may be decided, or slight, local, or general. When most at the top, we term it, for convenience, "acromial," and when most at the lower extremity, or inferior angle, we call it "angular." Curiously enough, these last features seem to depend on the higher or lower location of the disease which thus, as it were, *paralyzes the parts nearest.* An elegant way of testing "angular stiffness," even in a lady fully clad, is to place your two index fingers on the lower points of her shoulder blades, and watch and feel their movement as she sighs. The causes of this stiffness are supposed to be *loss of upward expansion* in the lung, tenderness, pleuritic adhesions, and weight of morbid deposits. A table of eighteen cases is added, illustrative of this sign. It was least in recent attacks; varied most in phthisis; was slightest in pneumonia, and greatest in chronic pleurisy.

8. A statement of measurements of ten males, shows the gain in inches, and decimals, by "third," "fourth," or "fifth," positions respectively, between the inferior angles of the scapula, and the lowest lumbar vertebra; the "superior angles" and the vertebra prominens of the neck and between the two upper and two lower angles of the scapula. Of the whole of the six positions, the first, fourth, *fifth*, and sixth are the most frequently useful. The others apply to particular cases. Taking into account the pulmonary complications of other diseases as well as the range of "chest disease," it is believed these various improvements, slight as they seem in detail, really throw light, perhaps, upon many forms of *one-third of the fatal maladies of the race.*

9. On account of its fearful importance, it is hoped they will mainly benefit *tubercular consumption.* Tracing, faithfully by various "marks," and the unhealthy habits of the patient, the agencies leading to the two prevailing causes, *feeble organization* and *depraved nutrition*—by prompt reform of abuses, generous *animal food*, and free exercise in the *open air*, with tonics, and *cod-liver oil*—we may do much to arrest the disease. *Occasionally we may cure.* The encouraging researches of Hughes Bennett, and Messrs. Rogée and Boudet show that from the numerous chalky concretions puckerings and cicatrices found at the tops of the lungs in very aged persons, it is probable that *about one half have recovered* from more or less tubercular deposits during their lives. Four living cases from several others are reported by the writer of arrest or cure of phthisis of several years' standing. The great question of this paper then is, *What may be the result of average notice, say three months sooner?* Time only can tell. Each physician who reads this is earnestly requested to aid by a faithful trial of this system of examinations in at least *three suitable cases.* The malady is still widely and deplorably fatal. From extensive trial, we firmly believe that, simple as they may seem, this *management of the shoulders*, these expedients for *thinning, condensing*, and *tightening the fleshy walls of the chest, add fully one third to our power of detecting the earliest signs of consumption.*

49 EAST BROADWAY.

ART. II.—*Classification of the Diseases treated at the New York Eye Infirmary during the year* 1858, *with brief Remarks on the Treatment.*

By F. J. BUMSTEAD, M.D., Assistant Surgeon.

DURING the past year, four thousand two hundred and nine cases of diseases of the eye and ear have been treated at the Infirmary. The following is a classification of these diseases:

DISEASES OF THE EYE.

Inflammation of the Orbit	3	Sclerotitis	36
Inflammation of the Lachrymal Passages	116	Iritis	110
Wounds and Injuries of the Lids	16	Atresia Iridis	5
Inflammation and Abscess of the Lids	34	Synechia	14
Entropion and Ectropion	26	Laceration of the Iris	1
Trichiasis	8	Prolapsus Iridis	7
Tumors of Lids	38	Dislocated Lens	2
Cancroid Tumors of Lids	5	Cataract	86
Tinea	213	" pseudo-membranous	2
Hordeolum	33	Asthenopia	36
Nævus	3	Nyctalopia	2
Conjunctivitis	852	Muscæ	4
" purulent	50	Choroiditis	22
" neonatorum	15	Retinitis	6
" pustular	392	Amaurosis	147
" granular	426	Glaucoma	9
" strumous	156	Mydriasis	1
Symblepharon	8	Diplopia	1
Pterygium	12	Internal Ophthalmia	5
Tumors of the Conjunctiva	2	Myopia	5
Corneitis	108	Presbyopia	2
Abscess of Cornea	8	Orbital Neuralgia	4
Ulcer " "	257	Paralysis of Orbital Nerves	10
Opacities "	157	Ptosis	4
Foreign particles	56	Blepharospasm	1
Pannus	4	Strabismus	27
Slough of Cornea	48	Lagophthalmos	1
Staphyloma	36	Exophthalmos	1
Conical Cornea	3	Sunken Globe	7
Aquo-Capsulitis	17	Injuries of Globe	129
Hypopion	2	General Ophthalmia	16
		Total	3,908

DISEASES OF THE EAR.

Eczema	3	Destruction of Membrana Tympani	4
Abscess behind Pinna	1	Inflammation of Cavitas Tympani	21
Periostitis of Mastoid Process	2	Disease of Internal Ear	7
Caries of Mastoid Process	2	Cerebral disease	3
Inflammation of External Meatus	10	Tinnitus	4
Abscess " " "	8	Syphilitic deafness	5
Ulcer " " "	2	Senile "	2
Polypus in " "	8	Rheumatic "	1
Impacted Cerumen in External Meatus	37	Deafness from Plethora	1
Excess of Cerumen in External Meatus	1	" " Intermarriage	1
Foreign body in External Meatus	2	Deaf-mute	2
Otorrhœa	56	Closed Eustachian tube	1
Myringitis, Chronic	40	Faucitis and Myringitis	3
" Acute	25	Cases not classified	35
Perforation of Membrana Tympani	14	Total	301

The above classification may appropriately be followed by some remarks on the general plan of treatment adopted at the Infirmary, in some of the diseases of the eye. It will be evident, however, that where the subject is so extensive, these

remarks must be brief, affording only a sketch of the mode of practice.

Simple Conjunctivitis.—The great majority of cases of acute and sub-acute conjunctivitis require no treatment, except cleanliness, a free purge, and *the avoidance of improper applications to the eye.* Confinement in a dark room is never directed, nor even to the house, except in wet weather; indeed, daily exercise in the open air is considered to be essential to a speedy cure.

Medicated lotions and drops, to be applied within the lids, are never directed in simple acute conjunctivitis, in which the secretion is only aqueous. Instead of benefiting, they irritate the inflamed eye, and do harm. The patient is ordered to bathe the eye frequently with cold or warm water, whichever is the more agreeable to him. No invariable rule can be laid down with regard to this, but generally at the outset of the inflammation, cold applications will be the more pleasant; but as soon as the inflammation is fairly established, the warm will be preferred. Simple cerate is prescribed to be smeared upon the edges of the lids at night, to prevent their adhesion.

These measures, aided perhaps by the exhibition of a free purge, are all that is required in most cases. Leeches to the external canthus, or cupping from the temples, may be of service at the commencement of the treatment, if the case be a severe one, and the patient of full habit.

Avoidance of improper applications to the eye has already been referred to, and among these, poultices, and a multitude of popular remedies which act like poultices, such as tea leaves, pieces of salt pork, alum curds, raw oysters, etc., are deserving of special censure. Very many of the patients who apply at the Infirmary have had their disease aggravated, or its duration prolonged, by such meddlesome interference. A poulticed eye may generally be recognized at a glance by the excessive injection of its vessels, and the œdema of the subconjunctival tissue. A perfectly healthy eye may be destroyed in a few days by the continuous application of poultices. Particular care is taken to impress upon patients this injunction: *never, under any circumstances whatever, to apply poultices to the eye, when any portion of the globe is diseased;* and it would be well if the importance of this precept were more generally recognized by the profession. During the past year, an infant, three weeks old, and afflicted with ophthalmia neonatorum, was brought to the Infirmary, after a course of poultices for two weeks, directed by the attending physician, when both eyes were found to be staphylomatous, and all hope of vision lost. Similar cases are of very frequent occurrence.

In some instances, simple conjunctivitis assumes an irritable and subacuté character, with little or no tendency to recovery. Such is likely to be the case in patients who were originally weak, or who have been debilitated by prolonged lactation, improper treatment, or confinement to the house. Tonics, generally quinine, or some form of iron, a generous diet, fresh air and exercise are here required. The irritability of the eye may be relieved by the application of tincture of iodine to the brow, or by exposing the eye to the fumes of boiling water, to which has been added a tablespoonful of a mixture containing equal parts of tincture of camphor, laudanum, and dilute acetic acid.

In the present report, cases of catarrhal conjunctivitis are classified under the head of simple conjunctivitis, although the treatment—the discharge being muco-purulent—is more akin to that of purulent ophthalmia.

Purulent Conjunctivitis.—Mr. Critchett lays down the rule in the treatment of this disease, that "Local stimuli, of which a solution of nitrate of silver is to be preferred, are useful in all cases of conjunctivitis, in which the discharge is of a muco-purulent or purulent character, provided the disease be limited to this membrane, and has not extended to the cornea or other tissues of the eye." The truth of this precept is confirmed by the experience of the Infirmary. The effect, however, should be watched, and if the pain in the eye be increased and the symptoms not ameliorated after a few applications, the case has probably been mistaken, and the drops should be discontinued.

Purulent conjunctivitis is regarded as a local and not a general disease. The old treatment by venesection, tartar emetic, and mercury is entirely abandoned. Local depletion, by means of cups or leeches, is sometimes resorted to at the outset, especially in patients of full habit. Cleanliness is of the first importance. The eyes should be carefully freed from all collections of purulent matter, as often as is necessary, to keep them constantly clean. No greater heresy was ever promulgated than the doctrine that the pus is the natural covering of the inflamed eye, and that it should not be interfered with. The discharge may be washed away with simple warm water, or a decoction of poppy heads may be used, with the addition of a drachm of alum to the pint. A solution of nitrate of silver, of the strength of from five to ten grains to the ounce of distilled water, should be dropped into the eye, after cleansing it, three or four times a day.

A free purge may be given at the outset of the treatment, but care should be taken not to repeat it too often, nor to

depress the patient by any means whatever. The worst cases of purulent ophthalmia occur in subjects whose systems are already much below par, and in the majority of cases nourishing food and even stimulants, quinine and iron are called for, and will be found to favor the cure of the disease and avert ulceration or sloughing of the cornea, which is most to be feared.

When the conjunctiva surrounding the cornea is elevated by effusion beneath it, so as to bury the cornea in its folds, the radiated incisions recommended by Tyrrell are resorted to, though it is not probable that the benefit obtained is due to the relief of the constriction, as Tyrrell supposed, but rather to the local depletion.

The number of cases of gonorrhœal ophthalmia and ophthalmia neonatorum that apply to the Infirmary, is not large; but this number may be taken as an index of the usual proportion of these diseases to all affections of the eye.

Gonorrhœal ophthalmia is to be treated strictly on the principles already laid down, viz.: by local depletion in some cases, the strictest cleanliness and the application of a solution of nitrate of silver every two or three hours. It is especially in this class of patients, who are usually debilitated, that general depletion, antiphlogistics and the use of tartar emetic and calomel (except as a purge) are to be avoided, and a generous diet, stimulants and the various forms of tonics, especially quinine in large doses, to be resorted to.

One or two cases a year are generally met with at the Infirmary of purulent ophthalmia in girls, from three to six years of age, and who are also suffering from a purulent discharge from the vagina. There is every reason to believe, from careful inquiry into their history, that this discharge is not of venereal origin. The disease of the eye usually occurs subsequently to that of the vagina, and is probably due to direct contagion by the application of matter. These facts support the views of those who regard gonorrhœa as a simple urethritis or vaginitis, since they show that the power of contagion of the discharge does not necessarily imply the existence of a specific virus.

In almost all cases of ophthalmia neonatorum, it is found that the mother was laboring under leucorrhœa at the time of the birth of the child. No constitutional treatment is resorted to in these cases. The nurse should be instructed how to cleanse the eyes by gently retracting the lids by means of the finger, covered with a bit of muslin to prevent its slipping, and then sopping up the secretion with a piece of rag, which is to be preferred to a sponge. Once an hour is not too often to repeat this, if the discharge be abundant. The concretion of

the matter and adhesion of the lids will be prevented by smearing them with simple cerate after washing. The local astringents used, and which are to be dropped into the eye from three to six times a day, are a solution of nitrate of silver, of the strength of three grains to the ounce of water, or a solution of alum, five grains to the ounce. The injection of these solutions by means of a syringe is not recommended. In unskillful hands, the eye is apt to be irritated by this instrument, and the solution is applied with sufficient thoroughness by simply dropping it between the separated lids after the discharge has been all removed.

Strumous and pustular conjunctivitis.—These varieties of conjunctivitis, it will be observed from the list of cases, constitute a large proportion of the diseases treated at the infirmary. The two are here grouped together, because they are in many cases essentially the same in character. Strumous ophthalmia is generally a disease of childhood, and often presents the small, whitish prominences which are variously called pustules or phlyctenulæ by different authors. Under the same head, also, many of the cases classified in our report as ulcers of the cornea would legitimately come, since the ulcer is nothing but a sequela of a pustule, formed by the bursting of the latter.

Cases of pustular ophthalmia are also met with not unfrequently after the age of puberty and in adults, but it is generally in subjects who are debilitated and whose digestive organs are deranged. But it is particularly of these affections in children that we are here speaking, among whom they are so frequent as to deserve the name of "The eye-disease of childhood." In the treatment of these cases, the chief reliance is placed upon general hygienic measures. The mother receives minute directions as to the dress, food, and general management of her child. Bare arms and legs are directed to be covered, especially in winter and the variable weather of spring and autumn. A diet of bread and milk, fresh meat and vegetables, and the avoidance of salt meats, pastry, candies, apples, tea and coffee, is directed. The child is not to be allowed to bury its face in a pillow, to be shut up in a dark room, or to have its eyes bandaged. It should spend as much time as possible in the open air daily. In addition, a warm bath should be given every night at bed-time, and one or two grains of rhubarb, with as many of soda or ipecacuanha administered at the same hour. Adhesion of the lids is prevented by the use of simple cerate, and cleanliness of the eye is enjoined.

Such simple measures as these will in many, perhaps in most

cases, effect a cure; and, under any circumstances, they will prepare the way for the administration of tonics such as quinine, iron, cod-liver oil, etc., which in most cases will be required in addition to the means already enumerated.

For the purpose of relieving the photophobia, and to act as a counter-irritant, tincture of iodine painted upon the brow, is a favorite application at the Infirmary. The action of this agent under these circumstances is not easily explained. We readily understand its effect as a counter-irritant, but it relieves the intolerance of light more than blisters will do. We may say that it exerts some specific action, but this is only a confession of our ignorance. This application at the Infirmary has almost superseded the use of blisters in various affections of the eye. In strumous ophthalmia, corneitis, etc., it is applied once or twice a week, so long as the photophobia continues, and great benefit is derived from it.

Granular lids and vascular cornea.—Cases of this disease are very numerous at a public institution like the Eye Infirmary, while they are very much less common in private practice. The difference is probably owing to the greater neglect among the poor of affections of the eyes, and to the depressing influences which prolong the duration of catarrhal and purulent conjunctivitis, the usual precursors of granular lids.

The treatment of granular lids and vascular cornea is notoriously long and tedious, and if suspended before the cure is perfect, a relapse is quite sure to occur. Of all this the patient should be fully warned at the outset. The most satisfactory results from treatment are to be expected in those cases in which the vascularity of the cornea is confined to that portion usually covered by the upper lid; the vessels entering the cornea in only one direction, viz., from above downwards, and the rest of the cornea preserving its normal transparency. In these cases, the vascularity is due only to the irritation of the granulations, and with the removal of the latter, may be expected to disappear. But when the whole cornea is vascular, the vessels entering it from all points of its circumference, the general constitution is usually at fault, and the process of cure is much more tedious.

In both classes of cases, our efforts are directed to remove the granular condition of the palpebral conjunctiva, by the local application of astringents. For this purpose, either a solution of nitrate of silver—two scruples to the ounce of water—or a crystal of sulphate of copper, is applied to the everted lid about twice a week as a general rule. It was formerly the custom at the Infirmary to use the solution of the nitrate almost exclusively, but of late years the sulphate of

copper has replaced it, in a great measure, with some of the attending surgeons. In the opinion of the writer, the sulphate of copper is to be preferred in the great majority of cases, especially where the granulations are soft and vascular. When, on the contrary, they are pale and firm, they require a more powerful agent, and the solid stick nitrate should be applied at longer intervals, care being taken to wash off any remains of the salt before replacing the lid. A solution of the nitrate, or the sulphate of copper, may be used in the intervals between these applications.

A solution of tannic acid in glycerine—a drachm of the former to an ounce of the latter—is a most excellent collyrium to give a patient with granular lids, to drop in the eye, three times a day. So far as I am aware, this collyrium was first suggested by Dr. C. R. Agnew, of the Infirmary.

The above treatment will occasionally be interrupted by the occurrence of acute inflammation and increased irritability of the eye, when the local astringents must be omitted, and soothing applications used until these symptoms subside.

Throughout the treatment of granular lids, the general condition of the patient should not be neglected, and if the constitution be found at fault, appropriate remedies should be administered. Above all, a residence in airy, healthy apartments, nourishing food, fresh air, and exercise, should be insisted on.

Many of these cases, when they first present themselves, have been confined to the house, or even shut up in dark rooms—often by the advice of their physicians—and restricted to low diet, or subjected to worse treatment. An entire change in all these particulars is at once commenced; but the change from darkness to light must be gradual. The eye, rendered sensitive by long exclusion from the light, will not at first bear the full glare of mid-day unprotected. A veil or a pasteboard shade will answer to shield it, and, at first, exercise should be taken in the early morning and late in the afternoon, when the sun is near the horizon; but in a few days even these precautions will be unnecessary, provided the patient be firmly impressed with the idea, that it is better not to favor the desire of seclusion, and carries out the wishes of the surgeon to re-habituate the eye to the light as rapidly as possible.

Something may also be done in this direction by the application of tincture of iodine to the brow, as recommended in strumous ophthalmia. Another valuable remedy in the photophobia of granular lids, as well as in that of strumous conjunctivitis and keratitis, is the administration of an emetic of tartarized antimony or ipecacuanha. This may be repeated once

a day for several days at the outset of the treatment, but is not to be continued for any length of time. All the good that can be expected from it is attained in a few days. It is found to relieve the photophobia, and prepare the way for other remedies, which are for the most part tonics.

Scarifications, in cases of granular lids, are very rarely resorted to at the Infirmary; division of the corneal vessels never. The latter procedure is objectionable in theory, and found to be injurious in practice. A case in which it had been used was brought to the Infirmary for consultation during the last year, in which obstinate ulceration of the cornea was the result, and the eye was with great difficulty saved.

Keratitis.—In pustular conjunctivitis the pustules are often situated upon the cornea, and in granular lids also the cornea rarely escapes; but in both these instances it is the external or conjunctival layer which is involved, and it is better to reserve the term keratitis for the inflammation of the deeper structure of this membrane, most commonly met with in young persons, and characterized by a hazy condition of the cornea, and a plexus of fine vessels in the sclerotic, surrounding to a greater or less extent its circumference.

This disease appears with various degrees of severity, and, in its worst forms, is one of the most intractable of all diseases of the eye. The same principles of treatment are adopted as already laid down for strumous conjunctivitis. Photophobia is relieved by the application of tincture of iodine to the brow, but our reliance for the cure of the disease must be based upon hygiene, regulation of the digestive organs, and tonics. The various forms of iron, quinine, cod liver oil, and iodide of potassium, will be called into requisition, but will not take the place of fresh air, exercise, and good nourishment. Mercurials are sometimes administered, but always in a mild form, and in connection with tonics, and are never pushed to salivation.

The cornea is a membrane of low vitality, and whenever ulceration or sloughing exists or is threatened, no matter how great the injection of the vessels of the eye may be, it is of the utmost importance not to depress the vital powers. Indeed, it cannot be too often impressed upon the minds of practitioners, that this condition is not to be met by mercurialization, tartar emetic, venesection, low diet, etc.; but that good diet, tonics, and even stimulants, are required to stay the destructive process, and save a part which is so essential to vision.

Having thus briefly considered the treatment of some of the diseases of the more external portions of the eye, which are most frequently met with in practice, and familiarity with which is most desirable, the limits of the present paper will

not allow us to extend our remarks to diseases of the deeper structures, with regard to the treatment of which there is, moreover, less room for a difference of opinion.

I will simply say that in the treatment of the latter diseases, as has already been indicated with regard to the former, the general condition of the patient should never be overlooked while attending to the local malady; and, as in the class of patients who apply to a public institution like the Infirmary, this general condition is for the most part one of debility, tonics find a large place among our therapeutic means.

There are two formulæ in the pharmacopœa of the Eye Infirmary, which are probably used more than any others in cases where a mercurial is required, and which are very happy combinations of a mercurial and a tonic, with the addition in one of a sedative. They are commonly called the "grey powder with quinine," and the "compound grey powder." The formulæ for them are as follows:

℞. Hydrarg. cum Cretâ, gr. ij.
Quiniæ Sulphatis, gr. j.
M. et ft. plv.

℞. Hydrarg. cum Cretâ, gr. ij.
Quiniæ Sulphatis, gr. j.
Pulveris Doveri, gr. iv.
M. et ft. plv.

In cases of iritis, amaurosis, etc., in weak subjects, these combinations are invaluable.

In hypopion a treatment is adopted, which is regarded as almost specific. It consists in administering one of the above powders morning and night, and from two to eight grains of quinine, in the interval, during the day; varying the prescription, of course, to suit the age and condition of the patient.

In the year 1856, Dr. Henry W. Williams, of Boston, published a report of sixty-four cases of iritis, both primary and of specific origin, treated successfully without mercury, by means of quinine and iodide of potassium internally, and depletion and belladonna locally. This report has excited some attention both at home and abroad.

Without doubting the accuracy of the observations of Dr. Williams, who is a most skillful and accomplished ophthalmic surgeon, it must be confessed that his treatment has not been as successful in other hands, at least in ours, as in his. Soon after the publication of the paper alluded to, I tried the treatment recommended by Dr. Williams in twelve or fifteen cases; and, while it answered well in those patients who had had a recent attack of iritis previously, or who were much debilitated, in other cases—first attacks in persons of good con-

stitution—it failed, and I was obliged to have recourse to mercury.

The importance of tonics, *in combination with mercurials*, in the treatment of iritis in debilitated constitutions, should never be forgotten. This was fully insisted upon in the admirable work of Mr. Tyrrell on the eye, and has since been recognized by most of those who have made a specialty of this class of diseases.

The ophthalmoscope is in constant use at the Infirmary, and, although it is felt that we are not as yet fully able to interpret all the appearances presented by it, yet it is regarded as an instrument of great value, and one that we could not now dispense with. The slightest shade of lenticular or capsular opacity can be recognized by it, long before the cataract is sufficiently developed to be visible to the unassisted eye. In amaurosis, the knowledge of the condition of the internal structures gained by such examination, is relied upon to decide whether treatment is likely to be beneficial or not. Where extensive disorganization, such as sub-retinal effusion, inflammatory deposits, etc., are visible, the case is abandoned as hopeless; where but little change from the normal condition is apparent, treatment is undertaken with the prospect of success, and the result usually justifies the prognosis.

It is proposed in future to publish in the pages of this Journal, a quarterly report of the cases treated at the Infirmary, in which illustrations of the preceding remark will be given. In these reports also will be found some account of operative surgery on the eye, as it is at present practised at the Infirmary—a subject which has necessarily been omitted in the present paper.

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ART. III.—*The Hymen; an Essay delivered (by appointment) before the "New York Medical Union."* By T. GAILLARD THOMAS, M.D., of New York City.

GENTLEMEN: In the virgin there exists, at the entrance of the vagina, a thin veil, formed by a reduplication of the vaginal mucous membrane, which, while it precludes the entrance of any bulky substance into the canal above, admits in its normal condition of the free passage outwards of uterine and other discharges. This delicate membrane, in itself of so little importance, that its uses are even now unknown, and that its very existence was for centuries doubted by able anatomists, is, by its associations, and collateral relations, so important to the practitioner of medicine, that I trust you will not regard as in-

judicious the choice of the subject of my remarks for this occasion.

Origin of the term Hymen.—The names which we find by various authors applied to this membrane, are "Eugion," as sometimes called by old writers; the "Flower of Virginity," as styled by others; and "Hymen," as designated in the nomenclature of modern times.

The etymology of the last appellation is somewhat uncertain. In the mythology of ancient Greece, a god named Hymen, the offspring of Bacchus and Venus, was supposed to preside over marriage, and it is possible that his name was given to that membrane, the rupture of which was regarded as the carnal consummation of the ceremony of which he was the patron.

From its crescentic shape, it is by some supposed to have been the symbol represented upon the brow of the virgin goddess Diana; the outward and visible sign of inward purity and unblemished chastity; But as Diana and Luna were the same spirits, it is more natural to suppose that the sign which she bore had reference to the crescent moon.

Anatomy, and not poetry, was probably mother to the name, the origin of which, it is likely, was the Greek word "ὑμὴν;" in the Latin rendered "hymen;" and in the Saxon tongue "a membrane." By some of the old writers the word hymen was applied not only to this structure, but to any membrane, as the serous covering of the lungs, liver, heart, etc., as will be seen by reference to the "Chirurgia Universalis" of Francis Joel, edition of 1663. We see an analogous use made of the word in entomology, where all that class of insects whose wings are membranous, are called Hymenoptera, from "ὑμὴν" a membrane, and "πτέρον" a wing, and a beautiful similitude exists between its use in botany and anatomy; in the former it designates the fine pellicle which incloses the flower in the bud; in the latter it defines the gauze-like veil, which guards the budding functions of womanhood; both about to expand and culminate coincidently with its rupture.

Literature of the Hymen.—An examination into the history of the hymen, presents one of the most singular instances of direct contradiction of authorities, on a subject which one would at a first glance imagine admitted of no doubt, or diversity of opinion. Indeed, were proof wanted (which, alas! is not the case) of the great uncertainties environing the reception of even the simplest facts in medicine, none more convincing could be given than that arising from a review of the opinions held on this subject at various periods.

That the most ancient people of whom we know aught, were acquainted with the existence of the hymen, there cannot be

any reasonable doubt; for a distinct allusion is made to it in the writings of the Hebrew legislator, Moses, who lived Anno Mundi 2433, his death occurring 1,490 years before the birth of Christ. After this I have met with no allusion to it until 194 years before Christ, when Terence seems to allude to it in describing the pain and hemorrhage attending the first conjugal approaches of a virgin. Cicero, who lived 42 years before Christ, points plainly to it in the following line (De Divinat. lib. ii.), referring to a woman of whom he had dreamed, "quæ obsignatam habebat naturam;" and Pliny (Hist. Nat. lib. vii., c. 16), A. D. 23, tells of Cornelia, mother of the Gracchi, "concreti genitali nata fuerat;" a probable though not positive allusion to it. But the most perfect and intelligent allusion to it, which exists in the writings of the olden time, is that contained in the old Jewish work called the Mishna. The exact date of this work is unknown; its parts were put together in the second century of the Christian era, but it dates certainly much farther back than that period. There, it is not only mentioned, but its characters were evidently pretty well understood, as will appear from a quotation which will be made from it later in this essay.

It may well be a matter of surprise to you that I thus quote from vulgar writers, and draw nothing from the works of Hippocrates, who flourished 456 years before Christ, nor from the writings of the Alexandrian school, nor yet from the 300 volumes left us by Galen, who lived 201 years after Christ. Curious as it may appear, no mention of the hymen occurs in the medical productions of those periods; Hippocrates, Galen (if we except this meagre allusion, vol. ii. p. 907, "Qua vero parte dilatato uracho membrana incipit enasci, satis multa ac veluti scabra quædam asperitas apparet"), and the disciples of Alexandria, all are alike silent concerning it.

Coming now to the time when learning took up its abode among the Arabians, we find, according to Paul Portal, that so much obscurity attaches to the allusions to the hymen by physicians of that period, that doubt exists as to their knowledge of it. Avicenna, however, who is regarded as having compiled, in a great part, his works from those of his predecessors, Galen, Rhazes, and Halyabbas, and who died in the year of our Lord 1036, speaks of it as a structure composed of veins.

I have now said, I think, enough to show that it is extremely probable, to say the least, that the existence of the hymen was recognized by the ancients: let us now leave those remote ages, and coming to the period when science rose from its long submersion during the middle ages, bring the subject to the present day.

In the 16th, 17th, and 18th centuries, anatomists were entirely divided as to the existence of this membrane, and the very first authorities of the time were arrayed against each other in opinion. Thus, Oribasius, Ambrose Paré, Varolius, Palfyn, Dionis, Buffon, and many others denied its existence, while the equally weighty names of Vesalius, Morgagni, Ruysch, Bartholinus the younger, Riolanus (whom Haller compliments with the quaint title of "restitutor hymenis"), Osiander, Smellie, Winslow, Meckel, and a host of others supported it.

Some even who found it, regarded its existence as abnormal; thus, Varolius thought it an adhesion of the nymphæ; others regarded it as a morbid stricture of the parts; Fernelius and Ulmus viewed it as a vaginal adhesion, while Buffon pronounced it a myth. Well might Bichat say that it was impossible to explain this diversity of opinion; but as it is curious, and may be profitable, let us try to do so as far as possible. The following considerations will, in some degree, account for it. First.—During the fifteenth, sixteenth and seventeenth centuries, dead bodies for dissection were obtained with great difficulty (as the familiar and suggestive picture of Vesalius dissecting in an obscure and secret cell, will readily bring to mind), and the material, which did afford the means for investigation, was generally the remains of the most abandoned prostitutes, or executed criminals. In such subjects, of course, the hymen was generally absent.

Second.—Just after the dark ages, when theory passed for fact, and proof was not required to render assertions valuable, physicians were more willing than at present to accept the errors of their predecessors, and indorse them without examination; and thus, it is probable, that many inconsiderately joined in a view, of the correctness of which they had made no effort to inform themselves.

Third.—It may be said that libertinism was at that period much more unbridled, and its domain much more extensive than at present. It is easy for moralists to point to the backslidings of our times, and bewail the fearful increase of immorality; but that the world has, since the dark ages, steadily advanced in morality as civilization has spread, is, I think, a fact supported by evidence too strong to be shaken by bald assertions, or overturned by specious arguments.

A fourth reason may yet be given. It is natural for the mind to reject even positive evidence, from a multiplicity of sources, when that evidence differs in each case in many important particulars. Now, all the descriptions of this membrane, so hard of discovery, differed more or less; thus, one would describe it

as a slender band, another as a circle pierced with holes, and a third as an unopened disk, hard and unyielding; so that even an unprejudiced investigator might (in ignorance of the fact that, like the mouth or nose, the hymen may assume a variety of forms) reject the small amount of positive evidence which he could obtain, and agree with those who regarded this "slight outward curtain to the nuptial bed" as the offspring of poetic imagination.

Anatomy of the Hymen.—Of the divers descriptions given of the hymen by the pioneers in anatomy, the following are specimens. Avicenna, of the Arabian school, regarded it as "a piece formed of fine veins, at the middle of the neck of the womb (vagina), inserted on either side." Riolanus considered it fleshy; Fallopius nervous; while one old writer, Picolhomini described it very much as it is now regarded.

At present it is known to be, simply, a fold of the mucous membrane which lines the vagina, stretching from side to side of that canal, just within the ostium. Like the rest of the vaginal mucous membrane, it is covered by pavement epithelium, the largest in the body, and between the two folds of membrane, cellular tissue may be found, in which run vessels coming from branches of the internal iliac arteries, and neves from the internal pudic; while its absorbent vessels communicate with the sacral and inguinal glands. Velpeau describes in it, likewise, some muscular fibres which he has found crossing each other, and resembling the fibres of the uterus; no other author, however, as far as my knowledge goes, supports this statement.

In color the hymen is of a reddish, fleshy hue, and generally in texture thin and delicate; though in the infant it is somewhat thicker than in the adult. In the infant it differs, also, in direction from that of the adult; lying against the vaginal walls, extending from behind forwards, like the lips, it gradually stretches itself across the canal as the parts enlarge with increasing age.

As a rule, there is but one hymen, though cases in which two existed, one above the other, are mentioned by Willis, Ruysch, Legros and others.

As regards the shape of this structure, much might be said, as may be supposed from the fact that thirty different varieties have been enumerated. It is not my intention to consume your time with a mention of them, but I will be satisfied by exhibiting to you, by means of the accompanying diagrams, those forms which are most commonly met with in practice.

The most common form which it assumes is that of a crescent, with concavity above, towards the symphisis pubis; next to this is met with most frequently the circular, with fringed

border and opening of greater or less size at the centre; after this come, in unascertained order, the disk, covering the mouth of the whole canal, perforated by holes; irregular bands, stretching across from wall to wall; and lastly, a disk without opening, occluding the passage entirely.

This membrane appears in the fœtus, according to Cruveilhier, after the sixth month of intra-uterine life, and unless broken, continues to be found until the sixtieth or seventieth year, and even beyond those periods. When it is ruptured, a good deal of pain is caused, and a flow of blood generally (though it is said not always) takes place. This flow is not profuse, and ceases of its own accord; the only case which I have seen recorded to the contrary being one by Dévilliers, where surgical aid had to be called in to check it.

Comparative Anatomy.—The comparative anatomy of the hymen was for a long time overlooked; it was supposed to be peculiar to the human female; but, as first demonstrated by Duverney, and subsequently abundantly supported by facts ascertained by others, it is by no means so. In a paper read by Mr. Duverney, before the "Institute," in 1805, its presence was pointed out in virgin mares and asses, in which it is semilunar in form; and in the brown bear, in which it consists of a thick fold shutting up a large part of the vaginal orifice. In the ape and monkey (according to the Nouveau Dict. d' Hist. Nat), it consists of two bands, crossing from side to side. It is found, also, in the hyena, the coati, the otter, the hare, and Velpeau says, the giraffe. The elephant is likewise provided; and Stellar has discovered it in the seal, the daman and the lamantin.

In these animals, as in woman, it is generally ruptured by the first sexual approaches.

Physiology and uses.—What wise purpose does the hymen subserve? It is, indeed, difficult to say. Some, and among others Haller, erroneously supposing it to exist only in the human female, regarded it as a protection against vice; as the thorn of virtue, which so often we see, reminding us not to cull too eagerly the flower of gratification, and of sin. But why, then, should it exist in the lower order of animals, where no such restrictions are needed? nay, where they would be absolutely hurtful, in controverting the command, "increase and multiply," obedience to which so much conduces to the benefit of mankind?

Thomas Bartholinus expressed the opinion, that it was to guard the internal organs against contact with external objects, and to act as a test for virginity; and in a part of this, Cuvier seems to agree, attributing to it, as a function, the keeping unimpaired the sensibility of the delicate internal organs until the period of conjugal life.

Support for this view might perhaps be found in the analogy which exists, with regard to this membrane, between the vagina and other canals leading outwards from delicate internal cavities. According to a general law of the economy, such passages are provided in some part of their courses, and generally near their entrances, with a sphincter, the action of which is rendered more perfect by a fold or folds of mucous membrane. The object of such reduplications seems to be to exclude more perfectly external influences; to retain until a fitting time the contents of the cavity which they guard; or to furnish a surplus tissue for the more easy and safe distension of the passage. Thus, in the rectum, the late Mr. Houston, of Dublin, described "certain permanent folds or valves of semilunar shape," situated just within the sphincter ani, and extending upwards one above the other for a space of three inches. When the intestine is empty, these folds overlap each other, and will catch a bougie and stop its passage; while in the distended state of the gut they disappear.

In the fauces a somewhat similar arrangement exists, in the velum pendulum palati and palatine arches; in the larynx, in the epiglottidean folds and in the urethra, in the sinuses of Morgagni, or in the special valve situated on the superior surface of that canal described by Guérin de Vannes in the *Gazette Médicale* for 1849.

It appears to me, however, that in search of a more probable and rational explanation of the presence of the hymen, we are forced to rest on the striking analogy which exists between the male and female generative systems, acknowledging at the same time that its special uses are by no means clear. By some of the Greek, Roman, and Arabian physiologists, among whom may be cited Aristotle, Galen, Rhazes, and Avicenna, it was supposed that the two sexes were typical of each other; that the female was an inverted male, and that in her the penis and testicles were merely turned inwards to form the uterus and ovaries; and this doctrine has, in modern times, received extensive credence, and caused considerable discussion.

As this is not the place to discuss the subject, let me merely call your attention to some of the most evident and important of these analogies:

The Testes are analogues of the ovaries.
" Prostatic vesicle is the analogue of the uterus and vagina.
" Penis " " " clitoris.
" Scrotum " " " labia majora.
" Perineal closure of genital sinus " hymen.

Thus the hymen would appear to be only the partial closure of a fissure, which in the male is complete; when it goes on to

completion in the female it constitutes an abnormity, as the falling short of completeness in the male likewise does.

Singular customs and superstitions regarding the hymen.—For the ancients, the hymen was invested with much that was mysterious and inexplicable, and they seemed to have delighted in surrounding it with the most curious superstitions, and attaching to it the greatest importance.

Scaliger, who flourished, I believe, in the latter part of the sixteenth century, in describing the properties of a certain root which had the power of causing lustful thoughts, declares that "Virgins that look to cattle in the fields, if they sit thereon, or make water, it is said that the skin in their privity will break, as if they had been defloured by a man." Here an entirely emotional cause was deemed sufficient for its rupture.

But they even supposed that the wind, the sun's rays, and similar causes, would break it; thus the "most learned Bartholinus" states that the Prayan virgins of Campania had it so thin that it was ruptured in them at the twelfth year, "partly by the heat of the sun, partly of their own bodies."

Its rupture was regarded by them as a proof of immorality, and its presence a guaranty of chastity. In cases where impregnation occurred without such rupture, they easily escaped conviction of error, by supposing that it took place through the influence of the winds, as Ludovicus Carius reports, or from the imagination, as in the case of Magdalena d'Auvermont, "who did conceive a son called Emanuel only by imagination."

Scott, in the following lines, refers to these old superstitions, in describing the Hermit of Benharrow:

"Of Brian's birth strange tales were told:
His mother watched a midnight fold,
Built deep within a dreary glen,
Where scattered lay the bones of men
In some forgotten battle slain,
And bleached by drifting wind and rain."
"She said no shepherd sought her side;
No hunter's hand her snood untied;
Yet ne'er again to braid her hair
The virgin snood did Alice wear!
Gone was her maiden glee and sport
Her maiden girdle all too short.
Nor sought she from that fatal night,
Or holy church, or blessed rite,
But locked her secret in her breast,
And died in travail, unconfessed."

But not only was the presence of this membrane regarded as a test of virginity, its rupture must be accompanied by an effusion of blood, or the good name of the unfortunate was gone forever, and she given over to the censure of the world.

In the twenty-second chapter of Deuteronomy, the following commands appear, offering a marked evidence of the stern requirements of the age which gave birth to the laws of the Hebrew legislator: "If any man take a wife, and go in unto her, and hate her, and give occasions of speech against her, and bring up an evil name upon her, and say, I took this woman, and when I came to her, I found her not a maid," then shall the parents of the girl show the tokens of her virginity to the elders of the city, in the gate, "and they shall spread the cloth before the elders of the city." If the cloth was found to have the requisite tokens upon it—namely, blood stains—then the elders were ordered to chastise the man, to fine him a hundred silver shekels, and make him adhere to his covenant with the woman. But, alas for his unfortunate wife, if no hemorrhage has occurred! "Then they shall bring out the damsel to the door of her father's house, and the men of the city shall stone her with stones that she die; because she has wrought folly in Israel, to play the whore in her father's house." Who can tell how many an innocent damsel may, under this law, have fallen a sacrifice to the fearful necessities of the times!

The custom of allowing the reputation of a woman to depend upon the occurrence of this slight and unimportant hemorrhage is said by Gardien to exist among the Bedouins; by Mahon it is said to be found still in Siberia; by Niebuhr among the Arabs in Yemen; while others assert the same of parts of Russia, Asia and Africa. Among the Jews of the present day, as I am informed by the learned Doctor Raphall, it exists in no part of the world, and has ceased to do so for a very long period. Even in the Mishna, already alluded to, the following passage appears, showing conclusively that its writers not only appreciated the existence of the hymen, but were cognizant of the fact that its absence did not prove want of chastity. In the treatise Ketuboth, chapter i, 7th paragraph, may be found this advice to the husband who suspects the virginity of his bride, "Should she assert, 'I have been fractured by accident,' while he replies, 'No, thou hast been defloured by a man;' Rabbi Gamaliel and Rabbi Eleazer say, she is to be believed; but the Rabbi Joshua saith, 'Not by her assertion are we to be guided; she is presumed to have been defloured by a man, unless she adduces proof.'"

In the "Arabic Proverbs," a curious work, by John Lewis Burckhardt, at p. 117, will be found the following description of a certain part of the marriage ceremony among the lower classes of the Moslem, at Cairo. The husband, after the marriage ceremony has been completed, and in fact as a part of that

ceremony, goes to the chamber of the bride and breaks the hymen with a cambric handkerchief, or a part of her under garment, spread over his finger. Should the cloth come forth stained with blood, she is regarded as worthy of being his wife; if it comes forth unstained, she is viewed as an unchaste woman, and cast aside.

The cloth, if bearing the requisite evidences, is then, with great noise and triumph, taken by the female relatives of the woman, and paraded in the neighboring houses, as proof of her virginity.

Burckhardt, in his travels in Africa, affirms that those races residing on the banks of the Nile, between Sennaar and Thebes, are unwilling to trust even to these means for securing virgin wives, and make for themselves a barrier to deception, in addition to that which nature offers. At the age of from three to six years, the daughters of the chiefs have the clitoris cut off, and by aid of scarifications of the labia, they are made to adhere, so as to shut up the genital fissure, except at the pubic extremity, where a small opening is left for the escape of the menstrual blood. This practice is said to exist, likewise, among certain tribes of India.

But the most curious superstition relating to this subject, that I have ever heard of, is that described in the "Revue de l'Orient," 1st series, 4th volume, upon the authority, I believe, of the Abbé Dubois. In speaking of the tribe called "Namboury," as one of its peculiarities, is mentioned the fact of that singular people believing that the existence of the hymen after death constitutes a bar to the proper and decent interment of the body. The honor of the family requires that it should be broken before the ceremonies of the burial take place. But only in the natural way must this be done. Accordingly, a member of the caste is bribed into the performance of an unearthly and revolting deflourment, and the burial then proceeds. If, in any case, this ridiculous and disgusting ritual is not observed, the relatives of the deceased are regarded as disgraced forever.

Medico-legal relations.—It behooves every physician to be sufficiently familiar with this subject to answer, intelligently and positively, the following questions: Does the presence of the hymen indicate chastity, or its absence the contrary? This point, kept for an unfortunately long period sub judice, is now entirely put at rest with a negative answer to both questions.

That its presence is not a reliable sign of chastity, is conclusively and fully proved by numerous cases, from which I will select a few.

Blundell saw four cases where pregnancy had occurred with-

out impairment of its structure; Ruysch was called upon to divide it, to allow parturition to take place; Capuron saw labor retarded by an unyielding hymen; and Baudeloque tells of one which the advancing head caused to rupture. Tucker reports a case in which not only did conception occur without injury to it, but remaining until labor, it resisted two or three successive and severe pains before yielding; and, to crown all, Parent Duchatelet, in his celebrated work on prostitution, tells of public prostitutes, who had for years followed their degrading profession in the streets of Paris, with the hymen so perfect as to leave even the most acute and experienced examiner in doubt as to their chastity.

The following interesting incident is related of Dr. William Hunter, who always expressed great confidence in the changes occurring in the areola around the nipples, as a sign of pregnancy. One day a subject was brought into the halls of anatomy, which Hunter, judging by his favorite sign, at once pronounced to contain a fœtus in utero. A vaginal examination was made to settle the point, when lo! a perfect hymen was found guarding the passage so faithfully to all appearances, that the defeat of the diagnostician was viewed as complete. Regardless of this, Hunter persisted in his diagnosis; section of the cadaver was performed, and, surely enough, a fœtus appeared as confirmation of his assertion.

But surprise at these statements will cease entirely, when the still more surprising (though not less authentic) one is made, that even parturition may occur without breaking it. Tolberg quotes a case from the elder Meckel, in which a fœtus of five months, surrounded by its membranes, passed without destroying it; Paré (who regarded its presence as abnormal) relates an instance in which he had to cut it after parturition, and Meigs in his "Obstetrics" says: "I have attended in all her confinements (and she has several children) a woman in this city, whose hymen is still perfect, and which never was torn, even in her labors."

With an accumulation of evidence like this, it might be supposed that jurists, as well as physicians, would be fully agreed as to the value of this membrane as a sign of chastity, and yet more than one instance has occurred within the present century to show that this is not the case. Thus, in the case of Rex *versus* Gammon, the Baron Gurney, before whom it was proved that violence had been done by the virile organ to the sexual parts of a young girl, pronounced the following as his opinion: "I think that if the hymen is not ruptured, there is not a sufficient penetration to constitute the offence. I know there have been cases in which a less degree of penetra-

tion has been held to be sufficient, but I have always doubted the authority of these cases." Such an opinion may well be pronounced to be a libel against the physicians of his time and the good sense of his century. This decision has since been overruled, and my conviction is that no conscientious and capable magistrate could at the present day screen an offender, with a mere quibble, the non-rupture of a membrane, the existence of which neither assures nor protects the sufferer from the fearful penalty of illegitimate maternity. How, then, is the physician who is called upon to examine the female organs in a suit for rape to judge in this matter? Surely by the circumstances of each case, untrammelled by rules which will not apply to all. Should the hymen be thin and delicate, and still uninjured, the aggressor could not have been very energetic nor successful in his attack. On the other hand, should it be found hard, elastic, or very yielding, the act may have been fully accomplished without injury to it.

Let it not be forgotten, while guarding ourselves against the error which will arise from an indiscriminate reliance, that the presence of a delicate and perfect hymen will often render it almost certain that the bearer is chaste. *As a link in the chain of evidence, the hymen is of value; as a conclusive and universal test, it is utterly worthless as a proof of virginity.*

As the presence of the hymen is not a reliable test of chastity, so is its absence no evidence to the contrary; for it may be in childhood or in adult years ruptured by ulcerative disease, prolapsus uteri, an imprisoned menstrual discharge, masturbation, falls, sudden separation of the thighs, the finger of a careless nurse in washing the parts, and a number of other causes. In some cases, too, it is congenitally absent, an occurrence by no means so remarkable as absence of the nose, the eyes, or any of the extremities. A case of this kind is recorded by Capuron, and Meigs expresses himself on the point in the following language: "There are thousands of pure, chaste, and not-to-be-suspected unmarried women in whom no vestige of the hymen is to be found."

Diseases of the hymen.—I approach this part of my subject, gentlemen, with a good deal of hesitation, from the fact that I have been unable to meet with any systematic arrangement of the diseased states affecting this structure, and of some I can even find no account in such works as I have been able to examine. I do not say that none such exist, but in the short time allotted by you for the preparation of this essay, I have not been able to find them. As examples of the diseases which will be mentioned, I will detail cases occurring in the prac-

tice of physicians of this city which have never yet been published, and which it gives me great pleasure to record.

The diseases of the hymen may be enumerated as,

1*st.*—*Fibroid, or Cartilaginous degeneration.*
2*d.*—*Ossification.*
3*d.*—*Aphthous ulceration.*
4*th.*—*Inflammatory ulceration.*
5*th.*—*Irritability accompanied by spasm.*
6*th.*—*An imperforate condition.*

The first of these states, fibroid degeneration, is by no means uncommon, and frequent mention of it will be found in works on obstetrics. It was probably due to it that, as Dr. Tucker reports, a hymen in his practice resisted several powerful uterine efforts which forced a child's head against it, and that Ambrose Paré was called upon to cut one which resembled parchment in a woman who had borne a child.

The courtesy of Dr. Valentine Mott enables one also to offer the following examples of it. Dr. Mott informs me that he has met with four cases in which the hymen had undergone this degeneration; in two he discovered it while making a digital examination of carcinoma uteri; in both it was hard, strong, and unyielding, so that the finger could be hooked against it and pulled with some force without any sign of yielding. The third case occurred in a lady in good society, who went to consult him, because she was entirely unable to perform the act of copulation, although she had been married for a length of time. Upon examination, he found the hymen so strong and resisting that it would have been impossible for the male organ to have broken it. Under these circumstances, he resorted to the bistoury, and making an incision through the obstructing veil, rendered the act at once practicable.

The fourth case (which is now under treatment by him) is that of an unmarried female, who is suffering from a fibrous growth, from the uterus, which hangs into the upper part of the vagina. The hymen "resembles in strength and resistance the fascia lata of the thigh," and shutting up the greater part of the mouth of the vaginal passage precludes all possibility of operating, or even of fully examining the morbid structure above. It is probable that, in this case, section will have to be performed.

The second of the diseases enumerated, ossification or calcific degeneration, is exceedingly rare, and after careful search I am unable to find a recorded case of it. The following very interesting instance of it, for which I have to thank Dr. William H. Van Buren, will substantiate the fact of its occurrence. While going around the wards of one of the hospitals of

Rouen, Dr. Van Buren was shown by M. Flaubert, the surgeon in attendance, a case of fractured thigh in an old French woman, probably about seventy-five years of age. In a vaginal examination called for by some uterine trouble, the hymen had been discovered in a complete state of ossification. This was verified by Dr. Van Buren's examination; the membrane gave to the touch the ordinary sensation of calcification, and when struck by a probe, it distinctly gave the sound which an ossific patch on the aorta yields to a metallic instrument which strikes it.

The third form of disease, aphthous ulceration, may affect this, as it may any other mucous surface, and in itself is of little importance. Sometimes, however, it produces obstinate vaginal leucorrhœa, more especially in young children, which may be readily removed if attention is directed to this as its cause. In one case which has fallen under my notice, marital intercourse appeared for some time delayed by these little abrasions which rendered the parts exceedingly sensitive; they were not, however, confined to the hymen, but existed on the labia likewise.

The fourth disease of our classification is one which has been ably described by Mr. Percival, in the "Medical Ethics;" Mr. Kinder Wood, in the "Medico-Chirurgical Transactions," and Mr. Lawrence, in his "Surgical Lectures;" each differing somewhat from the other in his description of what appears to be very much the same affection. The disease is characterized by swelling of the organs of generation, which assume a dusky red color, and soon ulcerate. This action is not confined to the hymen, but it suffers in company with the other organs of generation. My reason for drawing attention to it here is, that its ravages have been repeatedly mistaken for the results of rape; and in an inquiry instituted to settle the point, the ruptured state in which it was found might be erroneously regarded as confirmative of that charge, unless the physician was on his guard against this source of error.

The medical examiner who gives evidence in a case of rape, should keep this fact clearly before his mind, for death is the frequent result of the disease, the relatives of the female are convinced of the justice of their cause, and a case pressed, under such circumstances, might, by very slight corroborative testimony from him, turn against an innocent man. From a note received by me upon this subject from Dr. John W. Francis, I extract the following: "In one instance, the female, aged near twelve years, had lost the membrane by vicious practices; in another case, aged thirteen years, ulcerative action had occurred in the private organs, and the absence of

the hymen was thus accounted for. I have repeatedly known this disordered action to occur in those parts, in young subjects, at a period of life earlier than six years; the individuals having labored under that sad constitutional infirmity which years ago prevailed among the poor inmates of our old almshouse." He has known "two cases of alleged rape; one on the body of a child five years of age, the other on that of a girl eight years old, which were quashed, from the medical testimony advanced being grounded on the circumstances of the genital organs being affected with an affection not unlike that of the character described by Lawrence."

A striking case is mentioned by Dr. Percival, in which a girl, aged four years, after having slept with a boy aged fourteen, for two or three nights, showed the evidences of severe inflammation in the external organs of generation, and declared that her bed-fellow had hurt her during the night. The girl died, and the boy was arraigned for trial on the charge of rape and murder, and would probably have been executed, had not several similar cases occurred in the neighborhood just after, which enlightened the medical examiners, who had testified against him, as to the true nature of the case.

The name, "irritability," which I have applied to the fifth of the disorders of the hymen, is not satisfactory to me; and yet I know of no other which has yet been applied to it, or which would characterize it better. This condition seems to consist in a peculiarly irritable or hyperæsthetic state of the nerves supplying the hymen, which, by reflex action, causes spasm in the elastic tissue surrounding it, as thought by Dr. Tyler Smith, or in the sphincter vaginæ, as thought by Dr. Marion Sims. It comes on sometimes soon after marriage, the hymen being entirely ruptured, or only partially so, and either interferes with, or prevents coition for a period varying in time according to circumstances. From such information as I have been able to gather concerning this peculiar condition, it is by no means rare. Dr. Tyler Smith, in his excellent work on obstetrics, alludes to it in these words: "There is a considerable amount of contractile tissue in the situation of the carunculæ, and in some cases the irritation and spasmodic painful contraction at this point is so great as to render intercourse difficult or impossible long after marriage." Already, I have been able to collect six cases of it, the histories of some of which will be given below.

As regards its pathology, I have been able to find nothing published. It appears to me to be due to a morbid condition of the nerves supplying the hymen consequent upon mechanical violence done to that structure, as, for instance, to partial

or complete rupture during coit. And reasoning from analogy, I think that a perfectly logical conclusion may be drawn, that the morbid action may arise from that state of the nerves described by Romberg as "hyperæsthesia," or as Dickson expresses it: "A plus state of excitability or susceptibility." This, we know, may exist with very slight mechanical irritation, or from very trifling disease; thus it is that we see severe spasm occur in the small bronchial tubes from inhalation of the aroma of certain kinds of grass, the powder of ipecacuanha, etc., and that we meet with spasmodic action at the neck of the bladder, from the injection into the urethra of very mild astringent solutions. That a great morbid influence may be exerted upon the nerves of a diseased part by a very insignificant malady, is readily proved by reference to the severe and tormenting neuralgic pains which sometimes attack the seat of an old eruption of herpes zoster, and which sometimes continue for years after the cutaneous trouble has entirely disappeared. Sometimes we see this result upon the hymen continue long after marriage, accompanied with a low grade of inflammatory action established in the carunculæ myrtiformes, which may degenerate into warty growths, cause obstinate leucorrhœa, and require excision, as stated by Denman, Velpeau, and others. At other times there are no evidences of inflammation, but the morbid action seems to have left its impress on the nerves, and spasm lasts for years. The following cases, for the notes of which I am indebted to the kindness of Dr. J. Marion Sims, will illustrate the remarks which I have just made.

"Mrs. H., aged twenty-one years, had been married one year, during which period sexual congress had been perfectly impracticable, the effort being attended with such excruciating agony, as to forbid perseverance. The introduction of the finger produced the most intense suffering, with general nervous agitation, involuntary weeping, and even screaming. As soon as the finger was passed in, violent spasm would occur in the sphincter vagina, which could be felt like a hard tendon; and as it was withdrawn, immediate and perfect cessation of suffering would occur. Upon a minute examination, it was discovered that the hymen itself was the seat of this excessive irritability, and that the slightest touch was sometimes more intolerable than firm pressure. Pressure on the verge of the anus, the perineum, the labia, the meatus urinarius, the clitoris, and the mons, gave no unusual manifestations; but the moment that the hymen was touched, all the above symptoms were reproduced, and with this peculiarity, viz.: touching the vaginal surface of the hymen gave no pain, but the

instant the probe was brought in contact with any point in the line or fold between the hymen and the labia, the suffering was excruciating.

"I felt satisfied that this spasmodic stricture of the sphincter was due to a morbid sensibility of the hymen, and its proper nerve expansion at the os externum; and that the two conditions naturally reacted, as we see in fissure of the anus. Here the fissure when touched, or irritated in any way, produces a rigid spasm of the anal sphincter, and although the fissure is the original disease, it can be cured only by the division of the muscle, which (as a rule) should be made through the fissured chasm; thus, severing not only muscular fibre, mucous membrane and cellular tissue, but also diseased nervous filaments, that are exposed in the fissured surface. So in this *vagino spasmus* (if I may be allowed to coin a name), we have the same indications, viz., to divide the tissues of the part implicated, and also the muscle.

"As the case was one for observation, Dr. Emmet suggested that I should divide the hymen on both sides. This was accordingly done, cutting carefully through it and the vaginal mucous membrane on each side, for the distance of an inch, but not going through the sphincter. The patient was under the influence of chloroform.

"An examination, made a few days after this, showed that her condition was the same as before.

"A month after, another operation was performed, cutting laterally on each side downwards and backwards. Hemorrhage was profuse, requiring the use of a tampon, which was removed on the third day. It produced great suffering. On the 5th day a violent arterial hemorrhage occurred, which it was difficult to control on account of the extreme sensibility of the parts. I sent for Dr. Emmet to give chloroform, but fortunately succeeded in arresting it before his arrival. This tampon was removed in three days, but no examination was made for about three weeks, when it was ascertained that two fingers could be easily passed into the vagina, and that, without exciting any undue suffering. This partial success leads me to believe that another, and more perfect operation, will make her physically competent to perform all the duties of the marital relation.

"I have seen," Dr. Sims goes on to say, "two other cases like this. One in a lady, now married twenty-seven years, in whom it is almost impossible to pass the finger through the sphincter vagina. Indeed, the first attempt was an entire failure, and it was only after etherization, that I could ascertain that the vagina and its outlet were normal; the closure being

entirely spasmodic. During the twenty-seven years passed by this lady in married life, sexual congress has never been effected. The hymen is still perfect.

"The other case is in a lady, of twenty-five years of age, who has been married four years, during which time the act of coition has been impracticable. She had a sanguineous, mucous tubercle growing from the meatus urinarius, and I supposed that all her troubles sprung from this, as it was very sensitive to the touch; but its excision brought no relief, and upon a minute examination, I found the hymeneal condition precisely as described in the first case."

We come now to the sixth and last of the abnormal conditions to which the hymen is liable, and upon which, as it is fully described in all modern works upon the diseases of females, I will speak at very short length. Imperforate hymen is a congenital condition, accompanied by so marked and such painful symptoms, that it could not fail to have arrested the attention of very old observers. The Greeks provided for those who suffered from it a special name, they being called "*ατρήτὰι*" while the Latins styled them "clausæ" or "velatæ," and the Italians "coperchiati." Almost all the old writers alluded to this obturator membrane sometimes found in the vagina, and Ruysch advises its treatment by incision in these words: "Menses a membrana vulvam claudente suppressi, per-que hujus incisionem evacuati."

In these cases the uterus often enlarges under the distending force of retained fluid, the mammæ sympathize with its disturbance, vomiting comes on, and a confident diagnosis of pregnancy may be made; the erring physician adding the severest of pangs to the already unfortunate and suffering woman. Such cases are recorded by Frank, Montgomery, Denman, Smellie and others, and in one instance Dr. Macauley was not only deceived thus far, but mistaking the arched and bulging hymen for the presenting part of a child, and the expulsive pains caused by uterine distension for the throes of parturition, pronounced the patient to be in labor. The fluid discharged by incision of the membrane in such cases has amounted to quarts, and by one authority two gallons, it is averred, were thus retained.

The treatment of imperforate hymen suggests itself at once, namely, incision through the obstructing membrane.

As Dr. Rigby, in his work on diseases of women, says, "the operation is simple, and usually performed without difficulty," but he makes no mention of the serious results which sometimes follow so easy a procedure. Dangerous constitutional disturbance, peritonitis and even death have been known to

follow a small crucial incision through the hymen under such circumstances, and any one about to perform the operation would do well to guard himself against censure by informing the friends of the patient of this fact before undertaking the operation. Denman says, "I once saw an instance of inflammation of the peritoneum being immediately produced after the operation, of which the patient died, as in the true puerperal fever, and no other reason could be assigned for the disease. Dr. Ramsbotham has reported five fatal cases from the same slight cause. It is difficult to account for these grave results after so slight a surgical interference; the only explanation which I can offer for them is this. When the operation is called for, the uterus and fallopian tubes are much distended, and their mucous surfaces disordered by lengthy contact with the contained blood, and when atmospheric influences are for the first time exerted upon them the ordinary symptoms of inflammation of these parts are developed.

The following case, the notes of which the politeness of Dr. Hubbard, of this city, enables me to present to you, will illustrate these remarks.

"Miss A., of robust constitution and sanguine temperament, at thirteen and a half years of age, had symptoms of menstruation. These symptoms continued at regular monthly periods for something like one year, when I was sent for to relieve her of retention of urine. On introducing the catheter I discovered that there was a tumor of soft character pressing forward the hymen; that the abdomen was somewhat distended and tender, and the hymen imperforate.

I proposed an operation, but consent to it was not obtained. After suffering several times from retention of urine, produced by accumulation of menstrual fluid pent up in the vagina, and as often relieved by the catheter, the patient submitted to an operation.

Two years had now elapsed since the first symptoms of menstruation. The abdomen was found distended to the size of a first pregnancy at the seventh month of gestation, and the hymen tense, and pushed forward between the labia. Her general health had suffered to some extent, her countenance pale, and appetite not good. A crucial incision of one fourth of an inch was made through the hymen, through which flowed slowly a fluid of dark, pitchy appearance, without odor, of the consistence of liquid tar. After this a bandage was applied, and the patient ordered to be kept in a recumbent position. The discharge continued for three days, when it was supposed by the mother to have amounted to four quarts.

On the third day, the patient began to have fever and great

tenderness of the abdomen, and for some days her condition was thought alarming. But by free leeching, and the use of fomentations, the inflammatory action was subdued, and in two weeks she entirely recovered.

Causes of the persistence of the hymen after copulation and conception.—It may not be unprofitable in this connection to investigate the causes of the singular persistence of the hymen after copulation, conception, and even as we have seen, after parturition. They may be thus enumerated:

1. *Degeneration of its structure.*
2. *Extreme elasticity and distensibility.*
3. *A small male organ and a hymen with a large fenestra.*
4. *The existence of vaginal or uterine discharges.*

1. Of the first little need be said; its mode of action is evident, and I have already given cases where section of the abnormally strong membrane had to be performed to permit the marital act.

2. It is a well-known fact, that in certain cases the hymen is very thin, and easily stretches out against the vaginal walls under the influence of pressure of the virile organ. The distending force being withdrawn, its elasticity enables it again to recover its former position, from which it again retreats on a repetition of the attack upon it. It is undoubtedly to this variety that is due the fact that even repeated parturition does not rupture it, as already quoted from the writings of Dr. Meigs.

3. Regarding the third cause, I would merely call to your minds the fact that we sometimes meet with the hymen so largely fenestrated as to permit us to pass a small speculum into the vagina, and examine the os uteri above. In the same way, a small male organ has been known to pass and cast the seminal fluid on productive soil. Although the act of copulation be in this case often repeated, the rupture of the hymen may be left for the presenting part of the product of conception to perform.

4. The relaxing influence exerted upon this membrane by vaginal or uterine discharges has long been known. Mahon, and Foderé, and most of the writers upon legal medicine, make mention of it. Ruysch has said that if coit take place just after menstruation, it is often not ruptured, and Bartholinus even goes so far as to give to girls about to marry this advice: "But if her courses flow or have flowed a little before, the yard is easily admitted by reason of relaxation of those parts, whence there is little or no pain and little or no flux of blood. And therefore maids should not be married at

that season lest the bridegroom come to suspect the virginity of his bride."

The carunculæ myrtiformes.—Our subject would be incomplete without a mention of the carunculæ myrtiformes, the little fleshy bodies about the size of myrtle leaves which exist in the track of the hymen after its rupture. Some diversity of opinion has existed, and still exists, as to the source of these little bodies. Old Severinus Pinæus, quoted by one of his contemporaries as "a most expert surgeon of Paris who hath wrote an whole book of the notes of virginity, not unprofitable to be read," originated the idea that the carunculæ myrtiformes were so many points of attachment for a membrane which, running off from them, makes the hymen, and this membrane, being ruptured, leaves them visible.

MM. Rigaud, Tolberg, Belloc, and others of more modern times, have regarded them as simple reduplications of the vaginal mucous membrane which exist before the rupture of the hymen; but the weight of opinion at the present time is very decidedly in favor of their being the débris of the broken hymen, which gradually shrivel and occupy an unimportant position in the vaginal passage. The number of these bodies cannot be fixed, varying according to circumstances from two to six, or perhaps more. Two of these little eminences, as thought by some physiologists, appertain to the medium columns of the vagina; they are a little anterior to those formed by rupture of the hymen.

The carunculæ are liable to inflammatory action, as already stated, and sometimes degenerate, become warty in appearance, cause an obstinate leucorrhœal discharge, and necessitate excision, as advised by Denman, and practised by Velpeau.

But time presses, and we must conclude. Before leaving the subject, however, gentlemen, let us for a moment reflect upon the singular importance which has from the earliest ages been attached to the existence of a little fold of mucous membrane, the presence of which is, as a general rule, of as little value as a proof of chastity, as its absence is of the contrary. When we bear in mind that at various periods of the world's history the life, the honor, and the holiest affections of the female heart have been jeopardized by a blind reliance in it, how plainly can we see the important duties which are owed to society by that profession whose function it is to enlighten and instruct it upon points like these! How strongly and painfully does it impress upon us the fearful responsibility of our calling when we see such gigantic interests, the guardians of which we are, revolving around so insignificant a pivot!

ART. IV.—*The High Operation for Stone in the Bladder, performed upon an Original Plan, with Essential Modifications and Improvements.* By HENRY STUART HEWIT, M.D., formerly of the U. S. Army, and late of San Francisco.

E. S., a pale slender youth, aged 19, of English birth and parentage, presented himself in the month of December last, with all the rational signs of stone in the bladder. He referred the origin of the difficulty to an accidental injury experienced six years previously, which occasioned considerable hemorrhage per urethram, but for which he received no medical treatment. The present acute symptoms began to be troublesome about three years ago, and their increasing severity, with the consequent constitutional irritation and derangement, at last compelled him to forego his usual occupation, and seek surgical assistance.

The first attempt at physical investigation was foiled by the sensitiveness of the urethra and neck of the bladder. At the next interview, with the assistance of Dr. J. W. S. Gouley, chloroform was given, a sound introduced, and the existence of the suspected calculus indubitably ascertained. Another examination was made soon afterwards, in consultation with Prof. Van Buren, who indicated the size and shape of the stone with a precision exactly verified upon its subsequent extraction.

Mature deliberation, and careful consultation of authorities both in the literature of lithotomy, and among the eminent surgeons of this city, together with frequent practical rehearsals, determined the writer to select the high operation, which, it is proper to remark, was suggested in the first instance by his esteemed friend, Dr. Gouley. It was put in execution with the following modifications, on the 5th of January, in presence of Drs. Mott, Batchelder, Van Buren, Stephen Smith, Markoe, J. J. Crane, G. A. Peters, Geo. T. Elliot, Gouley, Carew, Busteed, and Phelps.

The patient, profoundly narcotized with chloroform, under the able superintendence of Dr. Elliot, having been laid upon a piano, selected as an operating table for its height and solidity, the steps of the proposed procedure, with the motives for their adoption, were briefly recapitulated to the medical gentlemen present.

Operation.—The bladder was emptied by a silver catheter, through which it was injected with tepid water to nearly its capacity. The ordinary abdominal section, commencing midway between the umbilicus and symphysis pubis, terminating at the superior border of the pubes, and completed through the linea alba, revealed the distended organ swelling into the

space between the recti muscles. The water, having accomplished its objects, viz.: elevation of the vesical reflection of peritoneum and ease of identification, was permitted to escape, and the flaccid viscus raised upon the point of the retained catheter was secured by a stout suture, passed through its coats and confided to an assistant, for the double purpose of holding it in position, and retaining it under complete control.

The place of incision being selected, and the absence of peritoneum certified, the bladder was pierced, the fore finger of the left hand of the operator introduced, and the division completed upon it, as a director, longitudinally downwards to the requisite extent; a slender forceps followed the knife, and the stone was gently rolled into its grasp with the point of the finger, and extracted with the utmost ease. The incision in the bladder was immediately closed by four points of interrupted silk suture, inserted with the aid of a sharp artery-needle, and the supplementary suture of support withdrawn. Owing to the admission of air, the bladder manifested a tendency to bulge between the recti muscles. To obviate this, and to prevent possible strangulation, the sutures used in closing the external wound were, at the suggestion of Prof. Van Buren, carried deeply through the substance of these muscles, and the inflated bladder thus, on bringing the edges of the incision together, pressed back into its natural position, the long ends of the cystic sutures, and of the ligatures of two small arterial branches having been properly distinguished, and brought out of the lower end of the opening. Lastly, a gum elastic catheter was passed and secured by straps of adhesive plaster carried around its free extremity, and laid upon the sides, and superior and inferior surfaces of the penis. After the patient had been removed to bed, a large sponge, as a receptaculum urinæ, was attached to the end of the catheter, and placed upon an oil silk protector between the thighs. The sponge was wet within an hour, and perfect drainage was in this manner maintained, and infiltration absolutely prevented.

The operation was followed by a high degree of reaction and severe irritation.

These symptoms were, in the opinion of a surgeon of the highest authority, and ample experience in lithotomy, more severe than those which follow favorable cases of the lateral operation. Vascular excitement, and nervous irritability were, however, effectually controlled by the veratrum viride and Magendie's solution, and on the third day what may be called *resolution of shock* took place, when the countenance resumed its natural expression, the voice recovered its ordinary tone, and the pulse fell to the normal standard. As soon as this favorable change manifested itself, the patient was put upon

superphosphate of iron and nutritious diet, with wine, and his bed and body linen ordered to be changed daily.

On the *fifth day*, the bladder gave evidence of integrity, by expelling its contents independently, and the catheter was accordingly removed. The patient was directed to pass his water frequently, and to send for assistance in the event of any difficulty. Unfortunately after passing water once or twice, he became nervous, and refused to repeat the effort. He concealed his condition until the accumulated fluid ruptured the new adhesions, and urine flowed through the track of the sutures and ligatures, already rendered tubular and lined with pus. Infiltration could not take place under these circumstances, and the accident was of no moment, excepting that it marred the beauty of the case. The fistula was not interfered with, and it closed on the twenty-fourth day from the operation, and the nineteenth from its occurrence.

On the tenth day, the sutures of the bladder and the ligatures came away together. The loops of two of the sutures had dissolved their continuity, and two remained entire. On the eleventh day, the patient began to sit up, and continued to pass most of his time in his arm-chair. On the twenty-first day he walked out, and is at present able to go about, and attend to his affairs. The external wound healed partly by the first intention and partly by granulation. The urine was bloody for four days succeeding the operation, and very highly ammoniacal for several days more. It became, before the conclusion of the treatment, healthy and natural with the exception of containing a very small quantity of pus.

Since performing this operation, the writer has read the paper upon epicystotomy, in the NEW YORK JOURNAL OF MEDICINE for January, 1858, by Dr. Noeggerath, and he takes this opportunity to express his admiration for the eminent surgical ability displayed in the management of the desperate case therein described, and his sympathy with the bold opinion uttered in favor of the high operation.

It is not necessary to enter into a comparison of the high operation, with the modifications described in the present case, and the lateral method. The writer believes this to be the first case of high operation performed by *selection* in America.

If the operation, with the modifications advocated, possess merit, it will be promptly recognized by practical surgeons. With these brief remarks, the foregoing case is respectfully submitted to the criticism and judgment of the profession.

80 East 29th st., Feb. 1st.

NOTE.—The calculus was of the size of an English walnut. Its analysis and description will be furnished hereafter.

ART. V.—*On the Respiratory Sounds.**—By J. HERZKA, M.D.

IN the "Treatise on Percussion and Auscultation, by Dr. Joseph Skoda, 5th edition, Vienna, 1854," this eminent clinical professor has, with complete success, controverted all those theories on the subject which, up to that time, have been set up in France and Germany, different from his own. Since then Professor Wintrich, of Erlangen, has published a very elaborate work on "Diseases of the Respiratory Organs," in which the Vienna professor is criticised anew, and new theories are established. At the present day, therefore, it only remains to be decided which of these two authors, if either, is correct, or how far the one or the other, or both, are in error.

It is the purpose of the following pages to show that, as far as the respiratory sounds are concerned, the teachings of both Skoda and Wintrich are unsound, and to endeavor to replace them by others less speculative and artificial, and more in keeping with the plain and established principles of natural philosophy.

The first point to be settled in connection with the respiratory sounds is, what opportunities are there in the respiratory organs for the production of any of them? Skoda and Wintrich, with all other writers on this subject, contend that the respiratory sounds result from friction of the air against the walls of the air-passages from the nostrils and the orifice of the mouth, down to the very air-cells.

Skoda says (p. 59), "It is well known that the air, during respiration, produces a sound in the nose and in the mouth. By application of the stethoscope one can become convinced that also in the larynx and in the trachea inspiration and expiration is accompanied by sounds. And there is, therefore, good ground for the supposition that during respiration, sounds are produced through the whole of the air-passages of the lungs." The same writer says (p. 109), "I explain, like Laennec, the vesicular respiration by the friction of the air against the walls of the minute bronchial tubes and air-cells, whose contractive power it has to overcome. From the circumstance that the penetrating air has to overcome the resistance of the air-cells, their contractility, and by the exit of the air in the normal condition of the lungs it meets no such resistance, it is to be explained that the respiratory sound in the air-cells is stronger in inspiration than in expiration. In the larger bronchial tubes, particularly in the trachea and larynx, things are different. The air has there no resistance to overcome during inspiration,

* The respiratory sounds proper are those under discussion, and even of these the *amphoric resonance* and the metallic tinkling will be excluded here.

on the contrary, it becomes rarified; but during expiration, where it is forced from a larger space—from the air-cells—into a smaller one, the air is compressed in the larger bronchial tubes, and particularly in the larynx. In the larynx, in the trachea and in the larger bronchial tubes, therefore, as a general rule, the expiratory sound is stronger than the inspiration." Again (p. 110, note), "I am of the opinion that the sound, which becomes audible in consequence of the friction between the air and the bronchial walls, originates in the air. The coexisting vibration of the tissue of the lungs does not make a sound."

Wintrich says (p. 154), "If we hear a person breathe strongly, the inspiratory and expiratory sound instantly makes the impression of friction. In ausculting over the larynx, the trachea, and over the superficially located main bronchial tubes, one hears, during inspiration and expiration, a friction sound." "This inspiratory sound on the periphery of the lungs, where no bronchial tubes lay superficially, the writers call the vesicular respiratory sound, and without hardly an exception, accept it to be a friction sound."—*Wintr.* p. 155. "There is no want of opportunity for friction during inspiration. Up in the mouth there are frictions against the parts of the palate, the throat, the epiglottis and glottis, the vocal chords, the cartilage rings of the trachea, and so on."

This, although universal opinion as to the cause of the respiratory sounds, I cannot indorse, nor can I accept such an ubiquity of their origin, for negative as well as positive reasons. My negative reasons are, that there is not the slightest proof to warrant such an opinion.

Skoda makes an attempt to prove this reasoning correct in the quotation above, as follows: because respiration produces a sound in the nose and in the mouth, in the larynx and in the trachea, therefore "*there is good ground for the supposition*" that sounds are produced through the whole of the air-passages.

Now, is this to be taken as an argument in favor of the friction theory? Because there are sounds produced in the nose, in the mouth, in the larynx and in the trachea, is it to be considered good ground for the supposition that such is the case all through the air-passages? In discharging a gun, we know that the detonation takes place first in the percussion cap and next at the bottom of the barrel, where the powder is placed, the powder chamber, and perhaps also at the muzzle; but is that good ground for the supposition that all along the barrel sounds are produced, and that these sounds are friction sounds, and that the detonation, too, is a friction sound? Or is the explosive sound of a champagne bottle the effect of friction all along

the neck of the bottle? These questions can be diversified ad infinitum. At last, if respiratory sounds are produced in the nose and in the mouth, does that prove that they are produced throughout the nose and mouth? How much, then, is left of what Skoda calls *good ground* for his supposition? I will hereafter take occasion to show that during placid respiration no sound is produced in the nose or in the mouth.

Wintrich forms his opinion more easily; he simply states that the respiratory sound "*created the impression of friction*," and this impression forms the basis of his conclusions.

Is the generating of sounds by the friction of air against the walls of tubes, through which it circulates, so much a matter of course as to require no further demonstration? I think not. That a certain amount of pressure against the parietes of air-conveying tubes takes place, cannot be questioned; but it will be hard to prove that a friction sound is thus ever produced, although our impression might lead us to presume it. Would not our impression equally make us believe that the voice and the cough are produced in the mouth, and perhaps by friction? And yet of what importance is this impression? Other positive objections to the friction axiom I reserve for a more convenient place.

My opinion, therefore, about the respiratory sounds is, that they are the effect of a shock between two portions of aëriform substances of different density at their point of meeting, to establish an equilibrium. We know that if a comparatively small quantity of gunpowder, or any other explosive substance, is suddenly transformed into gas, a sound is produced; because the newly created gas, having a greater density, expands with force to gain the equilibrium of the surrounding atmosphere. Or, if a certain quantity of a mixture of hydrogen and oxygen gas is suddenly transformed into a drop of water, it will create a vacuum, which the surrounding atmosphere will occupy with a rush, producing a sound. Or, if an aëriform substance, under a higher or lower pressure than the atmosphere, is confined within a certain space, and a sudden opening is made, so that the air from within can rush out, or the atmosphere from without rush in, the shock between the two will produce a sound at the very point of their first contact, at the opening.

The strength and character, with all the other particulars, of such sounds depend on the amount of pressure of the one element against the other; on the narrowness of the opening at which they meet; on the shape of such aperture, and on the elasticity of its rim, against which the expanding air strikes. Such elasticity being again determined by the material, the bulk and form of the rim.

With a little sober reasoning, therefore, we will gain something better than a mere impression—we shall become convinced that the respiratory sounds, like the vocal sounds and the cough, are the offspring of the sound-generating contact of two portions of air of different condensation.

During inspiration the greater condensation is with the air in the atmosphere, and during expiration with the air in the lungs. The voice and the cough constitute merely stronger expiratory sounds, with no other acoustic parentage. The local origin of the respiratory sounds can be none other than such border orifices between the two differently condensed portions of air: *the rima glottidis, the bifurcation of the trachea, and every further point, where a smaller bronchial tube branches off from a larger one.*

I will illustrate this by the following analysis of the respiratory acts. During inspiration, we enlarge the cavity of the thorax through muscular action, so that a vacuum is formed; consequently, the air in the lungs expands to fill it out; by such expansion the equilibrium, with the atmosphere, is lost, and to restore it the atmospheric air rushes in, first through the rima glottidis (sound No. 1), after the reëstablishment of the equilibrium between the atmospheric air and the air in the whole tract of the trachea, then the equilibrium is again disturbed between the air in the trachea, and the still attenuated air in the bronchus. A second rush takes place at the bifurcation from the trachea into the bronchus (sound No. 2), and so on at all the other bronchial embouchures, till the inspiratory act is completed.

During expiration, the same takes place in an inverse order. The air-cells contract, the air within them becomes condensed, and therefore rushes out through communicating orifices into the adjoining bronchial tubes; in consequence of such influx the air in these tubes becomes condensed, and again a portion must rush out into the next order of bronchial tubes, and so on till the whole of the superfluous air is discharged through the rima glottidis, and the expiratory act is completed.

But let us proceed a step further, and inquire whether a sound is actually produced between the so-called cells and the most minute bronchial tubes. If I ignite a minute grain of gunpowder, the effect even in the closest proximity will be hardly audible; if the atmospheric air rushes into a very small vacuum, the sound will disappear at a certain degree of minuteness of such vacuum; and *vice versâ*, if a very small quantity of condensed air is allowed to escape. So it may be with the so called air-cells and the minutest tubes. This, then, is the next point to be settled: *Are such sounds as I have*

described incited in the periphery of the lungs, that is, between the air-cells and the minute bronchial tubes?

Skoda, Wintrich, and others maintain, that the inspiratory sound, which we hear on auscultation over the thorax of a healthy person (the vesicular respiration), is generated in the air-cells by friction. They further contend, that during expiration the gradual contraction of the cells precludes any perceptible resistance to the escape of the air, and at the same time any formation of sound; but that in the larynx, trachea, and the larger bronchi, the expiratory sound is stronger, because the expiratory air becomes compressed in these comparatively narrow passages. Such discrimination I pronounce sophistical. In the larynx, the trachea, and the larger bronchi, the air is propelled solely by the *vis à tergo* from the moving air in the cells through their contraction. The more gradual such contraction, the more gradual must be the propulsion through the whole mass of air, and the more gradual the ultimate discharge through the rima glottidis, and the less opportunity for compression of the air in the larynx, etc. And, if such gradual contraction of the air-cells is the cause of the total absence, or weakness of the expiratory sounds, compared with the inspiration in these parts, it ought to have the same reducing effect on the expiratory sound in the larynx, trachea, etc.

I therefore conclude, that the sounds over the peripheric parts of the lungs do not originate there, but at the orifices of the somewhat larger bronchial tubes, and for the greater intensity, or sometimes, the sole audible existence of the inspiratory sound over these parts, I account in the following manner: On all points where in healthy lungs a sound is formed during respiration, it must be more intensely incited at expiration. Where, through ascultation we find the reverse, it is because there are weakening influences, not in the production of the sound, but in its propagation. So that the expiratory sound, stronger at its origin and native locality, may reach the stethoscope in a more attenuated condition, and be thus construed into an originally weaker sound.

I will first show that all the respiratory sounds in healthy lungs must in their *status nascens*, be stronger at expiration than at inspiration.

Suppose A = pressure or density of the atmosphere, or of the air in the lungs after completed inspiration or expiration.

v = volume of the lungs after expiration.

V = volume of the lungs after completed inspiration.

d = density of the air in the lungs after attenuation through inspiratory expansion.
D = density of air in the lungs through condensation at expiratory contraction.
p = pressure of atmosphere on the attenuated air in the lungs.
P = pressure of the condensed air in the lungs on the atmosphere; then

$$d : A = v : V;\ \text{and}\ d = \frac{Av}{V};\ \text{and}$$

$$D : A = V : v;\ \text{and}\ D = \frac{AV}{v}$$

$$p = A - d; = A - \frac{Av}{V}; = \frac{AV - Av}{V}; = V - v\,\frac{(A)}{V}\ \text{and}$$

$$P = D - A; = \frac{AV}{v} - A; = \frac{AV - Av}{v} = \frac{A}{v}(V - v)$$

$$P : p = V - v\,\frac{(A)}{v} : V - v\,\frac{(A)}{V}; = \frac{A}{v} : \frac{A}{V} =$$

$$= \frac{1}{v} : \frac{1}{V}; = V : v;\ \text{and}$$

$$P = \frac{pV}{v};\ \text{and if}\ V = xv\ \text{then}$$

$P = \frac{pxv}{v} = xp$; that is, if the capacity of the inhated lungs at inspiration is, 2, 3, 4, x times the capacity of the contracted lungs after expiration, then the propelling power by which the air is forced out of the lungs during expiration, is 2, 3, 4, x times the force by which, during inspiration, the air is drawn in.

Let us suppose, for instance, that the lungs, during inspiration, expand to twice their previous size, consequently the air within must be rarefied to the half of its previous density, that is, to half of the atmospheric density, and the atmospheric air must press on it with the weight of half a barometer. If then, after the restoration of the equilibrium at completed inspiration, the lungs again contract to their former capacity, the air within must attain twice the condensation it had before such contraction, that is, twice the condensation of the atmosphere, and the air will consequently be forced out by the weight of a whole barometer.

This deduction will answer more satisfactorily than has been hitherto tried, for the stronger auscultatory perception of the expiratory sound over the larynx, trachea, and larger bronchial tubes in the normal condition of the lungs, compared with the inspiration.

And, why is not such the case over the tissue of the lungs? With this question is coupled another one: why is even the inspiratory sound over the parenchyma of the lungs, though stronger than the expiration, still so much weaker and softer than the corresponding sound over the larynx, trachea and the larger bronchi? In one word, why is the vesicular respiratory sound so much weaker and softer than the tracheal and bronchial sound. This constitutes another fundamental point to be settled.

If on fresh calf's lungs, through tubes of different sizes, diversified sounds are excited by an assistant in the trachea, or bronchi, by blowing in the direction towards the lungs, or through a hole made at the bifurcation by blowing towards the larynx; or if that is done at the cut opening of the pulmonary artery; or if by dissection one of the smaller or smallest bronchial tubes is laid bare, cut open and a tube of convenient size introduced, through which an assistant may blow in either direction, towards the larynx or towards the air cells; or if by a transverse cut a piece of the lungs is removed, and bronchial and arterial openings exposed for the same experiment; I can hear distinctly, over every part of both lungs, the sound such as it issues from the tube of the assistant, with its distinctive character and very strong. The stronger the assistant blows, the more distinctly the sound is heard in every part, provided the lungs are not forced to respiratory movements. But if the tube used at the experiment is fixed airtight in the trachea or bronchus, and inflation and collapse are alternately effected, then the stronger this is done, the less will the original sound as it leaves the opening of the instrument be heard over the lungs. On inspiration, I hear over the lungs a rattling sound, crepitation produced by the air rising in bubbles through the mucus which dead lungs always contain; and at the collapse a very weak soft sound without a distinct character (perhaps a very gentle aspiration) is all that is to be heard.

Paradoxical as these results may seem at first sight, still there can be nothing more in accordance, not only with acoustic principles, but with well-known facts of every day's occurrence. If the assistant emits only a sound into the cavity of the air passages, this sound spreads in the stagnant air through all the bronchial avenues to the air-cells and through them, which prove to be very permeable by the sound, in the stethoscope. In a like manner this takes place if the sound is introduced through the pulmonary artery, whose minutest ramifications are possessed of the same permeability. But if simultaneously with the sound, a current of air is made to pass

through the bronchial tubes, such current will exercise a concentrating power over the sound, and will thus prevent it from passing freely through the walls of the minutest bronchi and cells. And if the sound which is to pass through the air passages is met by a current coming out of such passages, then a very small portion only of the sound will find its way against the current, and of this fraction, a mere sub-fraction, will traverse the tissue to enter the stethoscope.

If a person speaks in the open air when there is a calm, then the sound spreads with uniformity in all directions, and at equal distances will be heard all around with equal distinctness. As soon as the air is disturbed by wind blowing in one direction, the sound will be carried off with it, and will be heard best in the direction of the current, weaker laterally, and weakest in the opposite direction. Thus, we arrive theoretically as well as experimentally and by daily experience at the desired explanation.

The inspiratory sound excited by the in-going current of air is kept* concentrated within such current, and so much of it

* Wintrich endeavors to explain the bronchial respiratory sound, as well as the bronchophonia by an increase of the concentrating power of the bronchial tubes in certain pathological states of the lungs. He sums up thus (p. 144): "One can see from all these experiments that at least the collection (the concentration of the waves of the vocal sounds and the regular reflection of these collected waves) is the main cause of the increased sound of the voice." Again (p. 156) he says: "If the vesicles do not contain air, and if the next branches, or even several of them, are surrounded up to the root of the lung by tissue which contains no air, and consequently are more capable of reflection, we hear the panting, so-called bronchial respiration." . . . . . "But if the vesicles contain no air from whatever cause, and if the bronchi to a greater extent become more capable of the reflection of the sound, then the expiratory sound also becomes panting, *i. e.*, *tube-breathing*."—(p. 159.)

There is a *quid pro quo* in all that. The concentrating and reflecting power of the walls of a cavity certainly must make the sound stronger, but this is only for the listening ear within such cavity; outside of it, on the contrary, the sound must be so much weaker as it increases within. Both facts stand to each other in relation of cause and effect. If a sound strikes a plane under an oblique angle, part of the sound is reflected in the opposite direction at the same angle, another part of the sound is absorbed by the material of the plane, and a third part passes through it outwards. It is, then, self-evident, that the more favorable such plane is to the reflection of the sound and to its concentration, the less of it will be absorbed and permitted to pass. How, then, can a sound circulating within a tube adapted for its better concentration by its very construction, be heard more distinctly outside? Skoda says (p. 46): "These experiments show that the sound passes but a little out of dense substances into the air, or from this into denser substances. And natural philosophy further teaches that the sound on its passage from one medium to another is always reflected, and that the new medium receives less of the sound than there would be in the same space if it contained the same medium through which the sound has been propagated so far. There will be so much more of the sound reflected, and consequently so much less of it received in the new medium, the greater the disparity of the two mediums in respect to coherence and consistence."

To make this still more evident, I quote the following experiment:—A person

only is allowed to pass the tissue as will form the weak and soft vesicular respiration. During expiration the transmission of the sound is still more difficult. On its passage from the openings of the somewhat larger bronchial tubes backwards to the cells, it is met by the expiratory current.

Besides, I have demonstrated that the expiratory current is much stronger than the inspiratory current, and this circumstance, too, must tend to make the expiratory sound over the cells weaker compared with the inspiration.

Skoda thinks that the sounds produced in the different parts of the respiratory track lose their peculiar metal at a certain distance within the parenchyma of the lungs. He says (p. 95), under the head "*Changes of the respiratory sounds by propagation in the distance:* How the respiratory sound of the larynx is heard over the thorax, *i. e.*, through the healthy parenchyma of the lungs, we can ascertain by the following experiment: I make a healthy man stop breathing at the time we auscult the different parts of the thorax, while a third person produces a strong sound in the fauces of the man experimented upon, by blowing in a tube which has been introduced as far as possible through the mouth. The sound which the air passing the tube effects, resembles the respiratory sound of the larynx, and as it is very near the larynx, and strongly incited, it spreads through the substance of the lungs just like the laryngeal sound. In this experiment one hears, particularly in the interscapular space, a sound which has no resemblance with the laryngeal sound; it is deep, and difficult to be imitated with the mouth, as its consonant cannot be easily determined. In making an expiration with the consonant F we come nearest to this sound."

My experiment with the calf's lungs, as above detailed, goes far to prove that a sound made at any point of the air-passages is heard all over the lungs without any material change in its character. Skoda's experiment exhibits a want of accuracy. For how did Skoda know that the sound produced in the fauces

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holds a watch, so as to touch one of the open ends of a tin tube, about eight feet long and flattened at certain places for the convenient application of the stethoscope. On the other open end I hear the ticking very loud because it is conducted there through the air in the hollow of the tube as well as through its walls. On application of the stethoscope to the flattened part, I hear the ticking again very loud, because the sound is conveyed there through the substance of the tube walls. But if the watch is not brought in contact with the tube, and is held near its opening, then I hear at the opposite open end the loud ticking, and on application of the stethoscope to the walls, even as near as one and a half feet from the watch, I hear nothing of it, although in the air I can hear it distinctly at a far greater distance. The sound also disappears at the other end, if closed with a tin lid. *Reflection and concentration*, therefore, do not explain the *bronchial* respiration, and as Wintrich on his part has demolished Skoda's *consonance* theory, the *bronchial* respiration must be considered as yet an open question.

through a tube introduced, was similar to the respiratory sound of the larynx? If the sound proceeding from the mouth of the third person through the tube in the fauces was made to resemble the laryngeal sound, that does not prove that the sound actually made in the fauces had the same character. Skoda says, "the sound was strongly incited;" that is, a strong draught of air was sent through the tube, and this very draught produces in itself a sound at the opening of the tube in the fauces, so that this sound, combined with the other one transferred there from the mouth of the third person, make up, together, the real sound transmitted to the parenchyma of the lungs. It is a mixed sound at its starting point, and its character is difficult to be defined at the outset.

Or, if Skoda meant, that by blowing in a tube the sound produced is always like the laryngeal sound, as he in fact says (p. 115), "One imitates the bronchial sound by blowing through a tube." Even with this construction, the foregoing objection is not invalidated. For, by blowing simply but strongly in a tube, a mixed sound issues from it; the sound of the mouth and the sound taking its origin at the tube end. Only when we blow so gently in the tube that we cannot by it create a sound at its distant end, can we hear the pure unmixed sound from the mouth coming out of it. Of all this every one can become fully convinced by trying this very plain and easy experiment. Moreover, the calibre of the tube, the shape and width of its opening, will prove of importance, as all these particulars contribute to make up the character of the *autochton* sound If Skoda had used my elastic stethoscope in his experiment, he would probably have heard a loud whistle in the interscapular space, because the sound which a strong draught of air produces at its end, when passing through, is a whistle. Finally, if Skoda's experiment is to prove that the vesicular respiration is not the laryngeal, tracheal or bronchial sound heard at a distance, Skoda certainly has missed his aim. He experimented on a man who did not breathe; consequently the sound of the fauces was conveyed to the parenchyma of the lungs through the medium of stagnant air, when the vesicular respiration might still be the laryngeal sound conveyed to the parenchyma of the lungs through the medium of the respiratory air current. Is it not remarkable that Skoda does not even hint at the reason of his not hearing, during the respiratory act of healthy lungs, the laryngeal sound over the parenchyma, as he did in his experiment, that is as the sound F? This leads to another question. Is not the vesicular respiration, instead of being produced at one bronchial opening, rather a result of a series of sounds? At the rima glottidis a sound is pro-

duced, another at the bifurcation, and so on at each bronchial branching off. Do not all these combine to the formation of what is dissimilar to any of them—the vesicular sound?

One point more remains to be settled. It is this. How are the different modifications in the auscultatory perception of the respiratory sounds to be accounted for? These modifications are, either what can still be called physiological ones, although they are sometimes the effect of some morbid change, or such as come exclusively within the pale of pathology. To the former belongs the so-called "rough vesicular respiration," or puerile respiration. The latter embraces what Skoda calls "the undefined respiration," (unbestimmtes Athmen), and bronchial respiration.

It is a fact that in children the vesicular respiration is louder and more distinct than in adults. Skoda and Wintrich explain this fact by the friction theory. Skoda (p. 92), "We know, for instance, that in children generally the respiratory sounds over the thorax is louder and more distinct than in adults, although the sound in the larynx does not exhibit such difference in strength." In the same individual the respiratory sound over the thorax may become stronger from different causes, and resemble the respiratory sound in children, although the sound of the larynx remains unchanged. We conclude, therefore, on good ground, that the respiratory sound over the thorax of children represents the character of the sound in the vesicles and minutest bronchi in the most distinct and most perfect manner. Again (p. 111), "The vesicular respiration is stronger in proportion to the resistance, the contractility of the air-cells, and the quicker and the deeper the inspiration. The different condition of the lining of the air-cells and of the minutest bronchi must also modify considerably the strength of the vesicular respiration. One notices that the vesicular respiration is louder whenever it is rougher. The rough vesicular respiration signifies the smallest degree of swelling in the lining of the minutest bronchi and air-cells."

Wintrich (p. 157), "The younger the individual the more elastic and resisting is the tissue of the lungs, and the more imperative the call for accelerated breathing, as with ladies, especially if they belong to the very nervous class. In advanced age the elasticity of the lungs diminishes, but the mucous membrane grows rougher, wherefore this circumstance compensates in intensity of the *sipping* sound (of the vesicular respiration), for the loss caused by the diminished elasticity. Nay, the roughness of the lining can increase to such a degree that one can hear also a rougher sipping sound, such as can be heard from the same cause in catarrh of the lungs, which is called the *rough vesicular respiration.*"

The summing up of all this is, that in children the greater elasticity of the air-cells is the cause of a more accelerated breathing, and therefore the respiration, through increased friction, is so much louder and rougher, while the roughness of the lining produces sometimes the same auscultatory effect in adults. Though I have done full justice to the friction theory, I must be permitted to scrutinize that other dogma which declares that, *children breathe quicker than adults.* Children certainly breathe oftener in general than adults, within a given time, consequently with children each inspiration and each expiration is performed in a shorter time than with adults; but does that prove that they breathe quicker?" Children also eat oftener than adults, and perhaps they take shorter meals, but does that prove that they eat quicker?

Indeed, the very reverse is the case; children breathe oftener, but more slowly and gradually than adults.

Let us take for instance a strong, healthy boy, aged six years, height three feet, or in round numbers, 100 centimetres, weight 35 pounds, and a vital breathing capacity of 7 cubic centimetres to each centimetre of height, that is in all 700 centimetres of expiratory air, according to the tables prepared by Wintrich, after his most valuable and very extensive spirometrical experiments (p. 98.) Let us compare this child with a healthy, robust man of 30 years, 6 feet high, weighing 200 pounds, and with a vital breathing capacity of 24 cubic centimetres to each centimetre in height; that is in all 4,800 cubic centimetres of air expelled at each expiration.

As the man is of double the height of the child, it will not be far from reality if I presume, that in his dimensions from right to left, and from front to back, the man is also twice the measure of the child, so that on the whole the man is $2\times2\times2$, or eight times the full size or cubic measurement of the child. To be safer in this calculation, I will allow a deduction so as to suppose the man only six times the size of the child. In their comparative weight the man again is nearly six times the weight of the child, and at last, in regard to vital breathing capacity we find, with each expiration that the man expels more than six and a half times as much air as the boy. We can take it, then, for granted, that the lungs of the man are at their expansion, as well as their collapse, about six times the size of the child.

Now in looking at the number of respirations in a given time, we see that the man breathes sixteen times in a minute, and the child about twenty-four, or at the very best thirty-two times; that is, the child inspires at the most twice during one inspiration of the man. Or it takes the man, compared with the child,

double the time to draw in six times as much air. But to do six times the work of another in only double the time, means to do the work rather three times quicker than the other, and so the respiration of the man must be three times quicker than the respiration of the child. The child breathes oftener, the adult breathes quicker. The respiratory muscles of the child act more gradually, and the air passes in and out of the lungs with less rapidity than with adults. Mathematics do not care for universal opinion, according to Galileo's dying declaration.

It is quite plain, therefore, that in children, the current of the in and out going air being weaker, and consequently the impediment to the conveyance of a sound from within the air-passages to and through the tissue of the lungs being lessened, the vesicular respiration is not only louder, but in the same degree rougher—that is, preserving more of its original character, when first produced at one of the bronchial embouchures. The less of a sound which reaches the ear the more unlike its original character will it appear.

What is the rule with children may occur exceptionally in adults, particularly in delicate and nervous ladies, who can still be considered healthy. The cause will be the same, a more tardy although short respiration, and not as Skoda has it "a more rapid and stronger inspiration." Whoever has devoted some time to auscultation must have met with the somewhat puzzling fact, that in the healthiest, most robust persons, with a broad, well developed thorax, the respiratory sounds are sometimes the softest and the least audible. The foregoing remarks explain this fact.

After this I feel warranted in saying, that whenever from a pathological state the vital breathing capacity of the lungs is diminished, and the number of inspirations is not increased in the same ratio, and whenever such disproportion attains a certain degree, then there is room for a louder inspiration, and sometimes also for a more distinct expiration, and such louder respiration will at the same time bear more of the original laryngeal, tracheal or bronchial character, while such respiration, if sufficiently retarded, may become perfectly bronchial, and all the intermediate varieties between the vesicular and the perfectly bronchial respiration are such, as Skoda has thought proper to class separately under the negative title of "undefined respiratory sounds" (unbestimmte Athmungsgeräusche). In this connection I cannot do better than to quote Skoda's own words. He says, (p. 111): "The vesicular respiration gradually changes to the undefined respiration;" and (p. 117), "The bronchial respiration gradually changes to the undefined respiratory sound."

It is also evident that the terms vesicular, bronchial and undefined respiratory sounds are ill chosen; that all these sounds are either bronchial alone, or at the same time tracheal and laryngeal; that they spring all from the same source and rest on the same principle, and that the difference is only in their auscultatory perception through the parenchyma of the lungs, according as they are conveyed there by or against a full and strong, or a more subdued air-current, or are propagated through a column of perfectly stagnant or comparatively quiet air.

To fix the character of these sounds, Skoda has compared them with the sounds entering in the formation of the different consonants. Thus he compares the vesicular respiration to a gentle sipping sound, somewhere between V and B; many of the undefined respiratory sounds he places somewhere near the consonant F, or between F and H, and the bronchial respiration is the imitation of a sound between the consonants H and Ch—the latter according to its German pronunciation—that is, a sound formed by raising the back of the tongue towards the palate during expiration. We would have then a sipping sound (vesicular resp.), a puffing sound (undefined resp.), and a panting sound (bronchial resp.) Such terminology I consider more appropriate.

Here I have to anticipate several questions. *First.*—Why could we not, at will, retard our breathing so that on auscultation we would exhibit bronchial respiration over the parenchyma of the lungs? *Second.*—If the bronchial respiration, perfect or imperfect (undefined resp.), is heard over one part of the lungs, why is it not heard at least over the whole of the same lung, as my experiments on the calf's lung, above quoted, have shown that the parenchyma of the lungs is an excellent conductor of the sound, and as the air-current can certainly not be in the way of the propagation of the sound from one part of the parenchyma to the other? *Third.*—When I said that a certain degree of retardation in the respiratory acts can produce the perfect bronchial respiration over the parenchyma of the lungs, did I judge so *a priori* or from certain positive facts?

First.—A repeated effort to retard the respiration has always proved a failure in regard to the production of anything like the bronchial sound, because the sound originating at the rima glottidis or at the bifurcation became so weak, through such effort, that it was scarcely perceptible even over the larynx and trachea. If I shorten my breathing, then the number of my respirations increased in proportion, or the whole amount of retardation was only the effect of prolonged intervals between the different respiratory acts. Experimenting on others gave the same result. Still, I believe that by training and practice one might succeed to a certain extent.

Second.—Experiments on calf's lungs have proven, that if one of the lungs made respiratory movements, sounds produced in the meantime in the other lung were propagated to the parenchyma of the moving lung very imperfectly, and that only at smaller distances. My belief is, that the cause of it is not that the tissue of moving lungs is less adapted for the reception of a sound from a part of tissue at rest, but that the moving lung exhibits sounds of its own, which silence the foreign sound to a certain degree.

Third.—The following experiment will speak for itself. I cut away the trachea of a calf's lungs to within about an inch from the bifurcation. In this I introduced the cylindrical end of a stethoscope after the removal of the ear plate. An assistant inflated the lungs through the tube, and at a certain degree of inflation he was directed to close the lips, and then to let the air escape through the full calibre of the tube. In the mean time I auscultated over the lungs, and could hear nothing of the sound produced by the escape of the air. But if I fixed the lower part of a straight catheter, air-tight, into the lower end of the stethoscopical tube, so that the air of the inflated lungs had to make its escape through the narrow side slits of the catheter, then the escape was slow and gradual, and exhibited on auscultation over the lungs, the most perfect bronchial respiratory sound, identical with the sound over hepatized or compressed lungs—Ch (German) with the vowel *ee*. If, instead of using the catheter, I compressed one of the bronchi during the escape of the air, the effect was the same. By this experiment I gained the further conviction that for the production of this most exquisite bronchial sound (Chee) it is indispensable that the bronchial embouchure, where it is formed, must be compressed to a longitudinal shape.

Why the bronchial respiratory sound is, as a general rule, heard more during expiration than inspiration, is readily explained by the circumstance that the expiratory sounds are more strongly incited than the inspiratory sounds, as I have demonstrated above, that the expiratory pressure, is *cæteris paribus*, greater than the inspiratory pressure. P=xp.

Diagnostic import of the bronchial respiratory sounds.—Although the bronchial respiratory sound is mostly met with over parts of the lung which do not contain air in the cells, either through infiltration or through compression, and through which part runs an air-carrying bronchial tube in open communication with the larger bronchi and trachea; still, the hitherto dominant opinion, that such condition of the parenchyma is the essential cause for the production of the bronchial sound, must be given up. My experiments have proven, beyond any

doubt, that the condition of the parenchyma has nothing at all to do with the production of the bronchial sound.

It is well known that in dyspnœa the bronchial sound can be heard, sometimes, over the whole thorax. Skoda himself notices the fact. He says (p. 116): "And in great dyspnœa it (the bronchial respiration) can be heard between the shoulders, even over all the parts of the thorax, without any part of the lungs being without air." And how does Skoda explain that singular fact? He says: "This anomaly is explained thus, that the respiratory sound of the large bronchi, if sufficiently strong at its origin, does not require to be strengthened through consonance, to be heard over the thorax as bronchial respiration."

This assertion I am compelled to contradict most emphatically. In my experiments with the calf's lungs I found, invariably, that the stronger the assistant used his own lungs to set the calf's lungs in respiratory motion, the less I could hear of the sound transmitted in the latter. The real explanation is, that in dyspnœa the air-cells do very little towards expelling the air at expiration; the whole is more the work of the expiratory muscles compressing laboriously the thorax, and through it the lungs, which makes a very tardy and gradual expiration, and consequently gives rise to the bronchial sound.

The bronchial sound then signifies nothing else, but the absolute or only comparative stand still of the air immediately under or at some distance from that part of the thorax where it is heard. If a certain part of the lung does not partake at all of the respiratory movements, then the sound formed at the embouchure of the bronchial tube of the adjoining part of the lung, will be transmitted through the contiguous embouchure in the stagnant air-column of the bronchial tube, which runs through that part of the lung, whose air-cells do not participate in the respiratory task.

The diagnostic meaning of the so-called undefined respiratory sounds, is a similar one: a tardy and gradual ingress and egress of air in that part of the lungs where it is heard, or in a part not far from it. If we see a patient breathe short, and we hear at the same time the undefined respiratory sound, we may safely conclude that the number of his inspirations is far from being in such proportion as to make up for the shortness of breath, and that consequently there must be an actual insufficiency of breath.

It will not be considered a useless accumulation, if, in further corroboration of the foregoing remarks, I refer to a few more experiments of a different description.

Exp. 1. I blow the cheeks slightly up, so as to transform the space between them and the jaws, with the cavum oris proprium

and the fauces in one cavity. Then I apply the funnel-shaped end of an elastic stethoscope to the cheek, close below the malar bone, and the other end introduce into the ear. In breathing quietly through the partly open mouth and the nostrils, I hear during both respiratory acts, a gentle aspiration, similar to the sound of *H* in the word house, but softer and less marked. The vowel of this auscultatory sound is, as near as comparison will permit, *ao*. During expiration, this sound of *Hao* is a little stronger marked.

Exp. 2. I bring the cheeks again in the same position, but close the lips, so that I breathe through the nostrils alone. On auscultation I hear the respiratory sound similar to the *German Ch*, with the same vowel as before, *ao*. This panting sound, *Chao*, is again stronger at expiration.

Exp. 3. I now apply the stethoscope to the declivity of the nose, in the region of the ala nasi. If I then breathe through the open mouth and nostrils, I hear the respiratory sounds as in Experiment I. (sound *Hao*).

Exp. 4. The former arrangement, but the nostrils are closed, and breathing is carried on through the mouth alone. The auscultatory result is the same as in experiment 2 (sound *Chao*).

These experiments prove, in the first place, that during quiet respiration through the open mouth and nostrils, no sound whatever is produced in these cavities, neither by friction nor otherwise. For how could it be that if one of these cavities is made impassable for the respiratory air, the sound in such cavity should be the stronger?

So much for "impressions" in matters of sound. But the reality is, that the respiratory sounds are transmitted from the larynx through the cavities of the mouth and the nose; that along with these sounds the respiratory air-current passes through the same cavities, which current, in concentrating the sound within the cavity, allows only a small fraction of it to pass through the walls of such cavity; and that when such current is checked by the cavity being closed, much more of the laryngeal sound is heard, the same as through a bronchial tube in which the air does not circulate.

The expiratory sounds in these experiments, are stronger than those of inspiration, because these sounds stand in the same relation of strength in the larynx where they originate. During forced respiration, or if we breathe through the comparatively narrow opening of the nostrils alone, then certainly a sound originates independently of the laryngeal sound at the nostrils, the lips, and probably also at the choanæ and the isthmus faucium, the same as at the rima glottidis, the bifurcation, and so on.

Synopsis.—1. The respiratory sounds are not the effect of friction, but of a shock at the point of meeting of two portions of air of different condensation.

2. The respiratory sounds are not produced all along through the whole of the air passages, but at certain limited points; at the rima glottidis, at the bifurcation and other bronchial embouchures.

3. The vesicular respiratory sound is not produced in the cells and the minutest bronchi, but at the embouchures of the somewhat larger bronchial tubes; or it is the effect of the whole series of sounds following each other, and combining, from these embouchures up to the rimi glottidis.

4. The expiratory sounds are all stronger, *cæteris paribus*, in their origin, than the inspiratory sound. Because the expiratory pressure is greater than the inspiratory pressure. P=xp.

5. The cause of that diminished sound, called vesicular respiration, is that the inspiratory current of air concentrates the sound within the bronchial tubes, and allows only a small portion of it to pass through the parenchyma.

6. The expiratory sound over the parenchyma is so much weaker than the inspiration, on account that the expiratory current carries the best part of it off in the opposite direction, towards the larynx.

7. Children breathe shorter than adults, but not quicker. On the contrary, they breathe more slowly, as the number of their inspirations is not increased in proportion to the shortness of their breath. The air-current is more gradual, and offers, therefore, less obstacles to the propagation of the sound to the parenchyma. This makes the vesicular sound in children stronger and better marked.

8. In adults, particularly in delicate and nervous ladies, similar circumstances may combine to produce a similar effect—the rough vesicular respiration, or as it is also called, the puerile respiration.

9. The retardation of the respiratory air-current may increase so as to produce the undefined and bronchial respiration, which differ only in quantity.

10. Bronchial respiration does not prove that the corresponding part of the parenchyma is airless from infiltration or compression; it only proves an absolute want or a deficiency of circulation of the air in that part of the parenchyma, or in the part not far from it.

11. In the cavity of the mouth and nose no sound is produced during placid respiration through both cavities.

12. During forced respiration, or during respiration through the nose alone, or only through a narrow opening of the mouth,

sounds are produced at the nostrils, at the lips and probably also at the choanæ and the isthmus faucium, the same as at the rima-glottidis, at the bifurcation, and so on.

QUARANTINE, STATEN ISLAND, January 10th, 1859.

ART. VI.—*Report of the Proceedings of the Medical Societies and of the Practice of the Hospitals in New York; prepared for the* NEW YORK JOURNAL OF MEDICINE, by GEORGE F. SHRADY, M.D., Resident Surgeon to the New York Hospital.

NEW YORK HOSPITAL.

Fracture of thigh.—In noticing the peculiarities of the practice of the New York Hospital, I must not forget to refer to our method of treating fractures of the thigh. Though nothing original is claimed for the apparatus used, yet the experience of nearly twenty years has proved its practical value, and it is believed that its details have been so improved as to render the whole more convenient for application than any other with which we are acquainted. Believing that our mode of treatment is not so well known as it ought to be, I take this opportunity of referring to it somewhat in detail.

Before proceeding farther, I may be allowed to premise a little by saying, that it is the testimony of every one who knows anything definite in relation to the matter, that nowhere in the world are fractured thighs better treated than in the New York Hospital. This statement, I think, can be proved by a reference to statistics. Whether or not this is owing to the splint employed, I will leave those to determine who have used it.

Previous to 1837, fractures of the thigh in this institution were treated for the most part over the double inclined plane, and but very rarely Boyer's apparatus was employed. The results under this mode of treatment, as might be expected, were very unsatisfactory.

About the time I refer to, Dr. Gurdon Buck, who was on a visit to Philadelphia, saw Dr. Physick's apparatus, a modification of Desault's, for the treatment of these fractures, and was so well pleased with its general principle of application, that he determined to introduce it into this institution, as a decided improvement upon the old plan. This he did soon after his return to the city. He adopted Dr. Physick's apparatus in all its details, which consisted of a long outside splint, reaching from the axilla to eight or ten inches beyond the foot. It was perforated at its upper end with two half-inch holes for the purpose of securing the ends of the counter-extending perineal strap, and the extending band, formed of a silk handkerchief, was passed over a block that stood out from the splint below the foot, being secured finally in a hole further down at the lower end of the splint. There was also a short splint reaching from the perineum as far as the inner ankle, and a body-belt, passing around the thorax, tacked to the upper end of the long splint. In addition to all this, chaff pads were interposed between the splints and the limb. In applying the splints, they were first rolled up in a splint-

cloth, and well secured in place by four separate bands passing around the whole apparatus.

After making use of the apparatus for some time, it was found to be defective in many particulars; for instance, the readjustment of the splint-cloth was found to be very troublesome, as it had to be repeated daily. The first improvement, then, of Dr. Buck was the substitution of these cloths for pads, which were fastened to the splint. The next improvement made by the doctor, was a pocket in the body-belt, and to the lower edge of this pocket were fastened buckles for the counter-extending strap. By this arrangement the splint could be removed for the purpose of readjustment without disturbing in any way either the belt or strap.

Notwithstanding the utmost care and pains bestowed on the adjustment of the extending band to the foot, it was found impossible to prevent sloughing and excoriation either above the heel, or over the instep. Owing to the evil consequences of such extension, it was finally supplied by well adapted lateral pressure, the limb having been previously extended. This being the case, it was necessary to reapply the pressure daily. This method was persevered in for some time, but was at length abandoned for the use of the adhesive plaster as a means of extension. It was first employed in 1850, during the residence of Dr. Frederick D. Lente, now of Cold Springs, Putnam county. This gentleman, by his zeal and intelligence in its application, successfully inaugurated its use in this institution as a valuable auxiliary in the treatment of this fracture. Buck's modification of Physick's Desault, is certainly a triumph in modern surgery, so far as it relates to shortening and deformity. I have now noticed the principal modifications of Physick's splint, there are, however, several minor ones, which will appear in the subjoined description of its mode of application.

When a patient is admitted with a fracture of the thigh, there being generally a good deal of swelling present, the limb is placed upon the double inclined plane until all the tumefaction has subsided. Then he is prepared for the application of the straight apparatus. The first step consists in the preparation of a double band of adhesive plaster about three inches in breadth, which is cut long enough to extend from below the point of fracture on either side of the limb, forming a loop underneath the foot, a sufficient distance from the sole to allow of the introduction of a square block. This block is a little broader than the foot, and serves to prevent the pressure of the adhesive bands over the ankles, and also affords a firm point to which is attached a short cord for extension. This adhesive strap is applied smoothly to the sides of the limb and a bandage applied over it, leaving the loop free, extension being kept up in the meantime by an assistant. The body belt and perineal strap are next adjusted, after which the coaptation splints are applied in the usual way around the seat of fracture. Then the upper end of the long splint is placed in the pocket of the body-belt, the limb drawn down as far as possible, and kept fully extended by means of a stout cord over the footpiece. This cord is attached to a ring in a large wooden screw which plays through the block standing out from

the internal surface of the splint. Next, the inside splint, extending from the groin to the malleolus is applied, pads of blanket are then stuffed on either side to adapt the splints to the inequalities of the limb. All this having been done, the last step in the operation consists in binding the splints together, which is accomplished in the following manner. Three strips of bandage are passed at equal distances from each other behind the limb; one just below the trochanter, another just below the knee, and a third above the ankle.

The ends of these strips are then brought forward between the limb and the splints, carried over the anterior edges backward over the outside of the apparatus, crossed behind, and finally brought forward around the whole again and tied in front. By this arrangement a sling apparatus is made for the whole limb, at the same time the splints are nicely secured to each other. The extending force is regulated by means of the screw through the block. This block, I should say, slides in a fenestrum, being secured at any part by a screw arrangement, by which means the proper distance between it and the foot can be regulated in order to have the full advantage of extension.

This, then, constitutes Buck's modification, in other words, the New York Hospital splint, which since its first introduction into practice has never yet betrayed the confidence that has been placed in it. Perhaps the greatest addition towards perfection that it has had was the employment of the adhesive plaster; since that time, the results may be judged of from the following statement of 74 cases which involved the shaft of the femur exclusive of either extremity. These cases are taken in the order of their occurrence from the hospital records.

Seventy-four cases have been collected.

Of this number, 19 resulted without any shortening, the shortening in the remaining 55 averaging less than $\frac{3}{4}$ of an inch. The ages ranged from 3 to 64 years. 57 were over 12, and 17 under that age. Of the 57 there was no shortening in 13 cases, but in the remaining 44 the shortening was a fraction over $\frac{3}{4}$ of an inch. Of the 17 under 12 years, 6 resulted without shortening; the remaining 11 averaging less than $\frac{1}{2}$ of an inch shortening.

Leaving this subject, I will proceed to refer to a few cases of interest that have transpired since the last report was made. During the service of Dr. Van Buren, the following case occurred, which I think in its practical bearings is by no means devoid of interest.

Jacob F., aged 30, was admitted with retention of urine, 10 A.M., Dec. 25.—The stricture was the result of a gonorrhœa contracted five years previous, since which time he has been troubled more or less with a gleety discharge from the urethra. At the time of his admission he stated that he had not been able to pass water for 24 hours. After having given instruments a fair trial and without success an opium suppository (of 3 grains) was administered, together with a warm bath, after which a very small catheter was introduced and he was relieved of a quart of urine. He passed his water without much difficulty in a very small stream until the morning of the 28th, three days after admis-

sion, when retention again came on. Repeated attempts were made to relieve him, but without success, the instrument every time passing into what appeared to me to be a false passage. Dr. Van Buren at his public visit on the same day made a thorough examination of the urethra, while the patient was etherized and found the false passage to be situated a short distance from the stricture, extending several inches towards the prostatic portion.

The instrument, in consequence of this, was deflected from its course and could not be made to engage itself in the stricture, which was situated anterior to the membranous portion of the canal. It was not at that time deemed advisable to make any further attempts to pass an instrument, and the sole reliance was placed upon the tr. mur. ferri in xx. drop doses, every hour. The bladder was found to be much distended by examination per rectum. During the whole of the following night he suffered extremely, but about 7 A.M. the following day the tr. muriate came to his relief, the stricture relaxed its hold and a pint of urine escaped. I would state that the retention was supposed to be owing to inflammation occurring in and around the false passage—inasmuch as the stoppage of his water came on after he was in the hospital two or three days. Patient during the next 24 hours passed a quart of water. The tr. mur. ferri, in doses as above, was kept up with longer or shorter intervals for a day or two, when all danger of retention seemed to have passed, and he was put upon the use of the bi carb. of potass. in flaxseed tea, for the purpose of rendering the urine as unirritating as possible.

When the condition of the urethra was clearly made out, the patient was religiously let alone to allow of an opportunity for the healing of the false passage. That time having arrived in the course of two or three weeks a small flexible bougie was successfully introduced into the bladder. The patient soon after this, at his own request, was discharged without having been wholly relieved of the stricture.

I will next refer to an interesting case of strangulated hernia. The patient, a German, twenty-one years of age, about twenty-four hours previous to admission, in a violent fit of coughing, caused by the presence of a small bit of tobacco in his throat, felt something give way in the left inguinal region. This was soon followed by pain in the part, which gradually increased until admission, which was about 6½ P.M. On admission his surface was cold, pulse 62, respiration slow, and there was some hiccough present. I should have stated, that he had an attack of vomiting a short time previous. A tumor was found in the left inguinal region, about four inches in length, and two broad, oblique in its direction from above downwards, and firm to the feel. It seemed to be constricted at both the external and internal abdominal rings, while the intermediate portion was much distended. The general shape was pyriform, with the small end towards the internal ring. Every attempt was made to reduce it by taxis, with and without chloroform, when Dr. Van Buren was sent for, and an operation was resorted to by him two hours after admission. Previous to the operation, however, Dr. Van Buren expressed the opinion, that the

hernia was a recent one, and was owing to a congenital deficiency of the septum between the peritoneum and tunica vaginalis ; he came to this conclusion from the general shape of the tumor. There was dullness, on percussion over the tumor, which showed that it contained omentum. An incision, five inches long, was made from the root of the penis upwards to about opposite the anterior superior spine of the ileum, through the long diameter of the tumor. The skin and superficial fascia being divided, the several layers of investing tissue were, in turn, carefully cut through. On coming down to the sac, it was found to be somewhat congested, and the intestine was found to be of a dark color. As was expected, a considerable amount of omentum was found in the sac, the tumor being mostly composed of it. The principal stricture was found high up, and was divided, and the hernia reduced, but whether this stricture really existed in the sac, or at the internal ring, could not be determined with any definiteness ; several constricting bands were also divided. The cavity of the peritoneum, as was predicted, was found to communicate with the tunica vaginalis by an opening, into which the end of the finger could be introduced. During the operation, the testicle made its appearance at the wound, but was soon replaced. The wound was brought together, the edges being nicely approximated ; a spica bandage was applied. The patient passed a pretty comfortable night, but the day after, symptoms of peritonitis, attended by excessive tympanites, manifested themselves, and on the second day after the operation he died. On the examination of the body on the next day, the intestines, both small and large, were found enormously distended with gas, with slight adhesions existing everywhere. The fatal issue in this case was attributed to the large amount of intestine (18 inches) strangulated, and the length of time which had elapsed before the patient sought assistance.

The next operation of any moment performed by Dr. Van Buren, was the removal of a large fatty tumor, weighing five pounds, from the back of the neck of a female aged nineteen years. The operation was interesting, not only on account of its extent, but also in connection with the character of the mass removed. Unlike ordinary tumors of this variety, it was possessed of no cyst, neither was it divided into distinct lobules. It was, in fact, nothing but a mere hypertrophy of the adipose cellular tissue in the neighborhood. She had other depositions of fat over her body ; a large lump was situated on each shoulder, a mass under her chin, with a general hypertrophy of the adipose tissue of the back. The operation, on account of the character of the tumor removed, was necessarily a very tedious one, the operator being compelled to dissect out carefully the whole mass, leaving two immense flaps. Notwithstanding every precaution was taken to secure union, by first intention, the whole of these flaps sloughed and separated, leaving a granulating surface equal in extent to the former site of the tumor. The granulating surface is now gradually closing over, and the patient is getting on very well. This case will be found more in detail, by a reference to the proceedings of the Pathological Society for January.

Dr. Van Buren also performed primary amputation of the arm for

compound fracture, involving the elbow-joint. The patient, a short time before admission, fell with his left arm in a flexed position across a circular saw, which was revolving at a very rapid rate. The saw cut through the olecranon, shaved off a portion of the articulating surface of the os brachii, and also a portion of the radius, frightfully lacerating the muscles on the anterior aspect of the arm nearly as high as its middle. There was very little hemorrhage present. The radial artery was felt to beat at the wrist, but the injury was so extensive and severe that the operation, as aforesaid, was performed almost immediately after admission. Alanson's method was resorted to, and the stump left open. It is now two weeks since the operation, the surface of stump is gradually filling up, and the patient is improving fast.

Dr. Buck, during his term of service in the second division, trephined a patient for gunshot wound of the skull, which was received in a fracas. The wound was situated just above the mastoid process on the left side, about an inch behind and on a level with the top of that ear. Dr. Quinby, who saw him at the time he was brought in, on passing his finger into the wound found a depression in the skull, at the bottom of which was felt a flattened bullet. This piece of lead he removed by enlarging the external wound, and he then found that there was a circumscribed depression of a quarter of an inch. A consultation was held the following day upon the case, and it was determined best to trephine. The operation was accordingly performed by Dr. Buck. The margins of the bone around the depressed portion were gnawed off by the rongeur to a sufficient extent to allow the introduction of an elevator. Two small irregular pieces of bone were removed, the edges of which were bevelled off, at the expense of the external table, showing that the fracture of the vitreous portion of the skull was more extensive than the outer table. A very considerable quantity of blood followed the removal of these fragments, one of which had a groove on the internal surface of the lateral sinus, showing that that canal had been opened into. The hemorrhage was controlled, however, by a pledget of lint, the lips of the wound brought together, and a compress placed over the whole.

The patient went on very well for a couple of days, at the end of which time he was seized with a severe chill, which proved a precursor to phlebitis, from which he died at the end of ninth day after the operation.

Dr. Halsted, during his term of service last month, extirpated the eye for malignant disease of the orbit. The patient was a mulatto female, thirteen years of age, who was first seen by the doctor outside. The disease first began to make its appearance about three and a half years ago, when there was noticed an unnatural fullness of the outer canthus of left side. This fullness gradually increased, and filled up the cavity of the orbit to such an extent, that the eye-ball was pushed before it. The protrusion of the eye continuing, she was unable to close the lids perfectly. In the meantime, a well-marked aneurismal bruit developed itself. She never complained of any pain. In the middle of May last, Dr. Halsted tied the common carotid of that side, which operation was attended with a diminution in the amount of pro-

trusion to that extent, that she could close her lids. From that time the bruit has entirely ceased. She progressed favorably for a couple of months, when the tumor began to grow rapidly, and continued to do so up to the time of her admission into the hospital. Supposing it to be malignant in its character, the operation of extirpation was determined upon, and accordingly performed by Dr. H. An incision was made through the outer canthus of the eye, and the cavity of the orbit emptied of its contents by means of the curved scissors, when a tumor was found of considerable size surrounding the optic nerve. This mass being examined by the microscope, was found to be cancerous. There was a good deal of hemorrhage present which was controlled by stuffing the cavity with sponges, and applying a compress and bandage over the whole. These sponges were removed in forty-eight hours, and the part dressed with picked lint. The wound is now granulating nicely, everything promises well, but it is feared, notwithstanding, that the disease will again make its appearance. Her eyesight was good up to two months ago.

BELLEVUE HOSPITAL.

Report of Five Cases of Fracture of the Vertebræ. By CHARLES PHELPS, M.D., House Surgeon to Bellevue Hospital.

(Continued from p. 85.)

Case 3.—*Fracture and luxation of the first lumbar vertebra—Partial union of fractures—Death—Autopsy.* (Service of Dr. Stephen Smith.)—Ann Maddigan, domestic, born in Ireland, aged 30; moderately temperate, and of good constitution; admitted August 30, P.M.

History.—About 9 or 10 o'clock on the evening previous, while in a somnambulistic state, she had walked out of a third floor window, and falling two floors, struck upon the slated roof of a shed below. She was not rendered insensible, even for a moment, but could give no account of the direction in which the blow was received, except this, that she struck upon the left side. She had not, at the time, nor at any time previous to admission, either paralysis or anæsthesia, and no pain except upon motion. The left leg, however, had felt "numb" ever since. She had passed no urine or fæces since the accident.

Examination.—Upon examination, a slight deformity was detected in the region of the lower dorsal or upper lumbar vertebræ; an apparent displacement of a vertebra backward, and a very slight tenderness a trifle lower down, but no redness, ecchymosis, or other external mark of injury. The respiration was natural in character and frequency; the pulse rather frequent, but of moderate strength. The urine was drawn by catheter for a few days, and after that continued to pass involuntarily up to the time of her death. The bowels acted regularly. In the course of a week or ten days from admission, the vertebral prominence had increased to such an extent as to render easy diagnosis of luxation backward of the *first* lumbar vertebra. No paralysis or anæs-

thesia of any part of the body or limbs ever occurred. The very intense pain upon the slightest attempt at motion, which had originally characterized her condition, gradually diminished, and at length in considerable measure disappearad.

A bed-sore early formed over the sacrum, which slowly proceeded to exposure of the bone; diarrhœa supervened later in the progress of the case, and she finally sunk from exhaustion, and died Oct. 6th, 37 days from admission.

Autopsy.—Crushing of the body of the first lumbar vertebra, with displacement of the entire vertebra backward. Firm union in the fractured vertebra had taken place.

Case 4.—Luxation and fracture of seventh cervical vertebra—Death—No autopsy.—Thomas Reeny, carman, born in Ireland, aged 42; large, robust, intemperate, giving the rational history of phthisis; has passed renal calculi, but otherwise is apparently of strong constitution; was admitted to the hospital July 16th.

History.—On the preceding evening, when riding on his cart in a slightly intoxicated condition, he had been thrown off head first in consequence of a sudden jolt, striking first upon his head and then upon his back. He was not rendered insensible; noticed immediately that his limbs were all powerless. At the instant of the fall he felt intense pain "where the spine of the back is joined to the neck." Since then he had suffered it upon the slightest attempt at motion, but not at other times. The next day he had cramps in the left leg; the bowels were evacuated voluntarily in the morning, and the bladder in the afternoon. Seen during the day by Dr. James R. Wood.

Examination.—July 16, 11 A.M. Decubitus dorsal. Paralysis was complete below the clavicles. No anæsthesia except in either hand and forearm, as ascertained by a careful and entirely satisfactory examination. With the exception of some action of the scaleni, respiration was solely abdominal, but regular and easy. There was no priapism, though the penis was a little more excitable than usual. The temperature of the body was normal, or perhaps a trifle below the proper standard. There was no pain, except in the back of the neck, upon movement; but the feet and hands, and in a less degree the legs and arms, felt as if asleep. The neck felt easier when supported from behind, and pressed a little forward. He had complained of dyspnœa ever since the accident, but it was subjective entirely, and not at all objective. The bowels had been opened again by a cathartic this morning, but the urine had passed only upon the introduction of a catheter. This morning there had been some difficulty in deglutition, none previously, and the left side of the neck was somewhat swollen and tender. The intellectual faculties were as clear, probably, as they had been before the accident.

Ordered.—Beef tea and port wine in moderate amount.

Progress of case.—7 P.M.—Pulse full, slow, and hard, and 84 in the minute. Respiration 20, and as in the morning; catheter passed, but only ʒiij. of urine followed; ordered S. S. morph. and a mixture of carb. ammon. and spts. lavand. co. in mucilage, to be given if indicated.

July 7, 10 A.M.—Patient comatose, and has been so through the night; pulse 88, hard, strong and moderately full ; respiration still abdominal, and 28 in the minute. Increased temperature of surface all over the body ; coarse, dry râles all over the chest ; no wet râles ; no pleuritic effusion ; no tympanites. Passed ʒxx. of urine through the catheter ; ordered enemata of beef-tea and brandy.

3 P.M.—Died. Just before death, the face became turgid, lips purple, and eyes protruding ; and three quarts (just measurement) of blood flowed from the mouth.

Autopsy refused by the coroner upon consideration of personal safety; exact diagnosis could only be conjectured.

Case 5.—*Fracture and luxation of the fifth cervical vertebra.—Recovery.* (Service of Dr. Stephen Smith.)—George Reid, tailor, born in Ireland, aged 29, short in stature, but well made and well nourished, of good constitution, and with no taints or tendencies ; admitted August 5th.

History.—In Sept., 1856, he fell backward down fifteen stairs, and struck upon the back of the head and neck. He was rendered insensible and remained so for three hours. With returning consciousness he had no recollection of what had happened, and became aware that an injury had been received only as he attempted to rise from the bed. He then felt an acute, spasmodic pain in the back of the neck, which subsided immediately as he fell back. This pain in the back of the neck, upon motion, continued three months. Three weeks subsequent to the injury, he began to have severe pain in the back of the head —usually nocturnal—and at that time was admitted to this hospital in the service of Dr. C. D. Smith. He was not intoxicated at the time of the fall, but has never since been able to recollect anything in regard to it, his memory not being otherwise impaired. There was no wound, contusion, or other external evidence of injury upon the neck. With the exception of the pain mentioned, he had no symptoms. Did not know that the head was carried at all out of its natural position. He had no paralysis, no anæsthesia, no difficulty in respiration, micturition, or defæcation, no increase of temperature.

At the present admission, he came in to be treated for the cephalalgia, which had still continued.

Examination.—Upon examination externally, the fifth cervical vertebra was found to be displaced forward ; and upon examination through the mouth, the same vertebra could be felt, forming a large prominence in the posterior fauces. He was unable to swallow solid food to any considerable extent ; this and the necessarily awkward position in which he was forced to carry the head, were the only present local difficulties resulting from the displacement. The neck was firm in its new position. His general health was good, and he was discharged as affording no particular indication for treatment.

NEW YORK PATHOLOGICAL SOCIETY.

REGULAR MEETING, Nov. 10, 1858. DR. E. HARRIS, *Vice President.*

(*Reported for the* NEW YORK JOURNAL OF MEDICINE, *by* G. F. SHRADY, M.D.)

Surface abscess of brain.—Dr. Krakowitzer presented an interesting specimen which occurred in a patient twenty-three years of age. His history presented the following points: When but a boy, he remembered having a discharge from the right ear, but was ignorant of the cause. As a consequence of this trouble, the hearing upon the affected side was less acute than the other. The discharge after a time subsided, and he continued in good health until about a year ago, when he received a stab behind the same ear, in a drunken broil. This wound healed up at the end of a week after it was inflicted. A short time after it had healed over, there was marked pain and swelling of the part. The wound was then laid open by a physician, and a free discharge of pus took place. He suffered a greal deal, from time to time, which was caused by the closure of the wound. This, however, was relieved on allowing a free exit to the pus. Last July, when he married, the attacks became more frequent and severe. He was then obliged, when suffering from an attack, to hold his head stiff, and when he wished to rise, to hold it with his hands. On the 22d of last October the pain of an attack, which he had at that time, was so severe that he fainted away. On the 27th, Dr. Vos was called in. Soon after this, the patient was seen by Drs. Krakowitzer and Jacobi. They found an opening behind the ear about the size of a pea, into which a probe being introduced, dead bone could be felt. There was also found a hole in the mastoid process which connected with the cells about one inch and a half in length. The general symptoms, as have been stated, were those of intense suffering from pain. The skin was natural, pulse 84, head cool, pupils normal, answering readily to the stimulus of light. There was no distortion of the face, and the tongue protruded in a straight line. The symptoms in the course of the disease never changed. The patient never had a chill, nor was the appetite ever entirely destroyed. He improved somewhat from the enlargement of the wound, but considering this provision to be insufficient for the discharge of matter from the mastoid cells, an operation was performed on the 6th of the month, in order to give the discharge a freer exit. The external layer of the mastoid process was removed by a trephine, and a free oozing of matter followed the teeth of the saw. The cavity of the mastoid process was filled with thick purulent matter, which gave forth an abominably offensive odor. A large quantity of the dead bone was removed by Luer's forceps. The patient was not much relieved by the operation. The pain continued about the same, and he required opiates until yesterday morning, when he rather suddenly became comatose, and died.

Post-mortem examination—Dura mater and pia mater quite healthy.—On the anterior surface of the middle lobe there was a large abscess lined with a pyogenic membrane. On the anterior aspect of the petrous portion of the temporal bone, the dura mater was ulcerated to the size of a three-cent piece. At the bottom of this ulcer necrosed

bone was exposed. No connection could be found between the cavity of the skull and these cells. The portio dura, it seems, was not in any way involved in the diseased action. There was found a communication between the cavity of these cells and tympanum. Pus was found in the cavity of the third ventricle.

Dr. James R. Wood remarked, that surface abscess, as the result of syphilis, was a very common affection; that it might exist for a long time without interfering with the functions of the brain. He had trephined several for this abscess with marked relief.

Dr. Krakowitzer stated, that his case was a syphilitic one, that a well developed chancre was about the only inheritance he left his wife.

Dr. Willard Parker presented a cancerous testis removed from a child ten months old. The exciting cause of the disease seems to have been a slight blow upon the testis about six or eight months ago. About six months after the accident, it was noticed that the testicle began to increase; this was particularly marked within the last week or two. During all this time, the little one complained of no very considerable amount of pain. The organ was removed by Dr. P., and was found to be encephaloid in its character. He stated that it was the youngest subject in which he had met with that disease.

Dr. Wood asked how long it was possible for a patient to survive after an operation was performed? According to his experience he had never seen one live over two years.

Dr. Parker never had a patient to live over a year. Dr. G. Buck could only state the sequel of one case, and that one terminated fatally within a year after the operation.

REGULAR MEETING, NOV. 24.—E. R. PEASLEE, M.D., *President.*

Wound of carotid artery.—Dr. W. Detmold, presented a specimen of wound of the carotid artery with the following history: He was called a fortnight before to see a child who had the day previous fallen down a flight of stairs upon an open scissors, causing an incised wound about half an inch in length, situated about half or three quarters of an inch above the clavicle in the course of the common carotid. It appears that the wound bled a good deal, but the physician who was called in at the time, succeeded in arresting it, and closing up the opening with sutures. When Dr. D. saw the child the morning after, it was in a comatose condition—around the wound referred to there was a diffuse false aneurism, which gave a distinct aneurismic thrill. He concluded from the facts of the case that the carotid had been wounded, but as there was no hemorrhage present at the time he did not deem it advisable to cut down and attempt to tie the vessel. He watched the child and did nothing; a day or two after, the child became hemiplegic on the left side, the wound being situated on the right. This paralysis disappeared in a day or two. He saw the child a second time, after which the wound was left open, but no hemorrhage followed; the child progressing very well, with a pulse never over 120, until the tenth day after the accident, when he died.

Autopsy the next day.—The injured vessel was exposed by a careful

dissection, and there was found some blood in the sheath. The carotid was found to be severed entirely across with the exception of a small posterior band. The edges of the wound were found to be related to each other in such a way that the smallest amount of pressure was sufficient to cause coaptation of the parts. He supposed that the child died of phlebitis. The case was an interesting one, inasmuch as it proved that such an extensive wound of a large vessel could exist for ten days and be controlled by such a slight amount of pressure.

Dr. A. Clark asked if the paralysis was not due to a temporary interruption of the circulation through the part, and that when the force of the circulation was sufficiently restored to overcome the obstacle, the brain was again supplied with its normal amount of blood and the paralysis disappeared. He thought if the paralysis was due to the closure of a vessel by a clot, it would hardly disappear in two days.

Dr. Detmold believed that a small filament of coagulated blood was seporated from the main mass, carried into the brain until it came to an artery that was too small to let it pass, and in this way a small portion of the substance of the brain was deprived of its nourishment. The clot at the end of that time might have been absorbed and every thing go on as usual. In conclusion, he stated that he was not aware that paralysis was the result of ligature of the carotid in cutting off simply the supply of blood to the brain.

Dr. Clark stated that Dr. Jas. R. Wood related six instances where such a result followed the ligature of the carotid.

Dr. Van Buren stated that he had a distinct recollection of three cases that occurred under his observation, in which ligature of the carotid produced hemiplegia of the opposite side. In two of these the result was instantaneous. One case, he said, occurred under my care in Bellevue, which was performed for malignant disease of the nose in a man about the middle age. The case terminated fatally in 72 hours—nearly the whole of the side of the brain corresponding to the side of the ligature was found to be softened.

The second case also occurred in the same institution; the carotid was tied by Dr. Isaac Green—the patient was a middle aged man. This was also attended with paralysis, which he slowly recovered from, though I think, not entirely. The third case was one in which I assisted Dr. Valentine Mott to tie the carotid for malignant disease of the fauces. At the moment the ligature was applied there was hemiplegia of the opposite side. Patient after a while recovered from the paralysis, and the disease showing a disposition to return, the carotid of the other side was tied, paralysis also followed this operation. This second attack of hemiplegia was less severe than on the opposite side, and only lasted a day or two. The patient ultimately recovered for all I know to the contrary.

Dr. G. F. Shrady next presented a specimen of extensive abscess of the brain. It was removed from the body of one of the victims of the Thirtieth street tragedy, who died at the New York Hospital, on the 14th of November. The history of the case was as follows:

Elizabeth C——, aged 23, native of Ireland, was admitted to the

New York Hospital, Oct. 26th, during the attendance of Dr. Markoe, with scalp wounds, which were inflicted by a hatchet. Two of these wounds were situated just to the left of the median line, near the vertex, longitudinal in their direction, about half an inch from each other. The third was situated posteriorly on the right side, over the occipital bone, semicircular in form, and caused by a glancing blow of the weapon—they all extended to the bone. The skull itself did not seem to be injured materially. Several small pieces of the external table were chipped off in the posterior wound, and at the bottom of the wound nearest the vertex there was a small groove in the bone about an inch and a half in length, evidently caused by a direct blow upon the part. When first seen she was considerably prostrated both from the shock of the injuries received and the loss of a considerable amount of blood; though there was no cerebral disturbance present. Reaction soon came on, and everything progressed favorably. She continued to do well, the wounds granulating nicely until the 3d of Nov., eight days after the injury, when she complained of severe pain in the side of the head in the region of the wound, attended with a great deal of febrile excitement, dilatation of the pupils, and the occurrence of hemiplegia of the right side. From that time she began to be stupid. Her bowels were freely opened, leeches were applied around the wound, a blister to the back of the neck, but without any good effect. Coma supervened on the third day after, when an operation was attempted for her relief by Dr. Parker, who was at that time attending-surgeon. During the night previous to the day of the operation the patient had four general convulsions, which were quite severe.

Taking these symptoms into consideration, it was thought possible that a portion of the internal table of the skull was depressed at the situation of the groove on the outside. Dr. Parker trephined over this spot, removed a button of bone, and found a small spicula of the vitreous table splintered off at a point corresponding with the external injury. The dura mater was diseased at that point, thickened, softened, and was unavoidably wounded by the trephine. A portion of this membrane, about as large as a two-shilling piece, was cut away. The brain substance immediately underneath did not seem to be injured, and presented no marks of any abnormal action, except a considerable discoloration of the part.

The wound was left open and dressed with cold water. The next day after the operation her mental functions were sufficiently restored to enable her to answer some questions intelligibly, but the appearance of her pupils were unaltered. On the 8th, three days after the operation, a small fungus, about the size of the end of the finger, made its appearance projecting from the centre of the wound; still she kept on improving, complaining only of an occasional pain in the head, which was always alleviated by the application of leeches. The pupils still kept moderately dilated. Her pulse, during all this time ranged between 90 and 100, was moderately full but compressible.

On the morning of the 11th, six days after the operation, she was seized with another general convulsion, making the fifth. It was by no

means as severe as the former ones, and lasted but five minutes. She continued in this state with a good deal of intelligence, able to answer questions promptly, pulse quiet and full until the night of the 12th, seven days after the operation, when rather suddenly coma again came on; her pupils became again widely dilated, pulse ninety-two, and thready. Leeches were again applied, and blisters placed on the back of the neck, but no abatement of the symptoms followed their use. During the day the fungus, which had increased none since its formation, was noticed to shrink away into the cavity of the skull, leaving nothing but the thickened scab which formerly covered it.

The coma grew gradually more profound during the following night, the pulse growing more and more feeble until eleven A. M. of the 14th, when she died. Early on the morning of her death, on removing the wet cloth from the wound, it was found to be smeared over with brain matter, this discharge continued until death took place, and amounted in all to a small teacupful.

The post-mortem examination was made four hours after death. The whole superior surface of the dura mater was thickened, and at the situation of the hole in the skull, there was an opening into it nearly as large as a half dollar, nearly circular in shape, with ragged edges. This opening discharged through it a considerable quantity of broken down brain substance mixed with pus, of a pinkish hue, which formed the contents of an immense abscess of the brain, occupying fully two-thirds of the whole substance of the left hemisphere. The cortical portion of the organ was destroyed for a considerable space around the wound in the dura-mater. The cavity of the left ventricle was found to be entirely obliterated, the *corpus striatum* and *optic thalamus* were almost entirely destroyed by the diseased action. The septum lucidum was partially destroyed. The corpus callosum was very much softened. The right hemisphere was very slightly affected, the softening being very superficial, and limited to the superior margin of the longitudinal fissure. The walls of the right ventricle were somewhat broken down, and the cavity was, to a certain extent, filled with the same material. Besides this, there was a small deposit of flaky pus around the optic chiasm and in the fold of the longitudinal fissure.

I omitted to state, that at the time of operation a very small quantity of pus was seen to flow from the wound in the skull.

Dr. Detmold in this connection referred to a similar case of abscess of brain, which was evacuated by a free incision. When he first saw the case, the patient was comatose, the pulse 40, and breathing stertorous. He removed a portion of bone, and found the dura mater perfectly healthy, but from the nature of the case, being under the firm conviction that an abscess did exist, boldly cut through, and evacuated it. While the pus was flowing, the patient recovered his consciousness. The quantity discharged amounted to five or six ounces. After that, the patient went about for a couple of months, and, with the exception of his memory, which however he entirely lost, he did very well. His reasoning powers seemed to be unchanged.

He lived sufficiently long to allow the wound to heal up, with the exception of a small opening through which a probe could be introduced for its whole length, into the lateral ventricle. At the end of a couple of months, trouble in the brain again came on, pus found in the ventricle, and was evacuated, but he died soon after. It was found that the *septum lucidum* had been ruptured, and discharged some of the contents of the diseased ventricle into the one upon the opposite side.

Dr. W. H. Van Buren next referred to an analogous case of another one of the victims of the tragedy. The wound was about one and a half inches to the left of the median line on the top of the head. It presented a solitary fissure which penetrated the skull, and resembled very much the appearance of a chop into a log by a broad axe. It was impossible to bring the edges into any correct apposition. A probe being introduced into the wound, went into the substance of the brain. He was satisfied that the dura mater was injured, and went no farther. There was neither concussion nor paralysis present. Under the circumstances, it was thought best to close up the wound, with the hope that the opening in the dura mater might close. Accordingly, sutures were applied.

The patient did well for thirteen days, when he was seized with convulsions, after which he was thoroughly paralyzed upon the opposite side. With a pair of cutting forceps, the cranial bones at the seat of the injury were carefully gnawed away. He then discovered that some of the fragments of the internal table were detached by the force of the blow. These spiculæ were found to be adherent to the dura mater, and when detached, pus was seen to flow. The child looked very much at that time, as if he was going to get well, it being fourteen days since the operation. After the operation everything went on very slowly, and in the meantime he began to be excessively pallid. This state of things has been noticed by Rokitansky, who supposes it to be owing to a lack of power in the nervous centre to elaborate the blood corpuscles.

He stated that four out of six of these victims were paralyzed on the opposite side of the injury. The other two were not hemiplegic. The eldest son was very severely injured—in fact, he had the most formidable wound of the six, yet not a bad symptom has showed itself since the injury, and he is now in a fair way to recover.

Dr. Krakowitzer stated that Dr. Isaacs of Brooklyn examined a case of fungus cerebri, where the matter protruded was essentially brain matter, as was proved by microscopical examination.

Dr. Parker referred to an interesting paper, by Dr. Gurdon Buck, published in the NEW YORK JOURNAL OF MEDICINE AND SURGERY, vol. ii. 1840. Thirty-three cases were collected ; in all these the fungus was found to be composed of brain-matter.

Dr. Krakowitzer thought that the fungus was a new growth, and that Isaac's case was a very rare exception.

Dr. A. Clark stated that he had examined portions of the fungus in two of Dr. Buck's cases, under the microscope, and was positive that there was not a particle of brain-matter in them.

PART SECOND.

CRITICAL ANALYSIS.

ART. VII.—*Statistical Report on the Sickness and Mortality in the Army of the United States.* Prepared under the direction of Brevet Brigadier-general THOMAS LAWSON, Surgeon General U. S. A., by RICHARD H. COOLIDGE, M.D., Assistant Surgeon U. S. Army. Washington, 1856.

THROUGH inadvertence, this volume has not hitherto received a notice in this Journal, although it has been issued nearly three years. We deem an apology for this apparent indifference due the distinguished officer under whose directions it appears, and the able editor, to whose indefatigable and intelligent labors, the character of the work must be chiefly ascribed. For that class of medical men, whose reports form the bulk of the work—men who volunteer to enter the army service, and spend their days in the inhospitable regions of our border—we have the strongest sympathy; nor would we in the smallest degree fail to show a proper appreciation of their contributions to medical science. The work presented under the above title is of such magnitude and peculiar—we may say original—character, that the few moments and brief space, usually devoted to the review of the ordinary new books of the day, are entirely inadequate.

Undertaken by Dr. Coolidge in obedience to instructions received from the Surgeon-general, the present work gives all the statistical information compiled from the records of the Department since the publication of the previous work, prepared by the late Dr. Samuel Forry, and printed in 1840, and embraces a period of time from January, 1839, to January, 1855. It contains the most complete account of the sanitary condition of our army, and the medical topography of the whole of our vast area extending from Maine to Mexico, and from ocean to ocean; and with the remarks on the topography and special diseases of particular districts—contained in the various sub-reports, as well as in the observations of the author—presents to the medical profession an array of important facts, such as could have been obtained in no other way. The organized whole is presented to us in a form which stands unrivalled in composition, arrangement, or topographical execution.

The volume is arranged in two parts, the first containing the statistical report of the sickness, etc., occurring in the army. These statistics are, for convenience, arranged under separate heads, corresponding with the great geographical divisions and their sub-regions. The

second contains an account of the sickness and mortality of the troops during the Mexican war; and to the whole an appendix is added, containing answers to the Surgeon-general's circular issued in 1843, requesting a report from the various medical officers, regarding the administration of quinine in *large doses*. Many of these are full of interesting statements and facts given by Surgeons Satterlee, Wood, Byrne, Harney, McCormick, and others.

The sub-reports contain information, interesting not only to medical men, but to others engaged in scientific pursuits. The botanist, geologist, zoölogist, meteorologist, and ethnologist, will find much that is valuable in their respective branches.

A complete analysis of the merits of every sub-report, and of the prominent features of each sub-region, would render the present review too lengthy, and our words superfluous, as the terse remarks made by the author at the close of the history of each region, are themselves so concise, that to do justice to the subject, we would simply be quoting Dr. Coolidge's own observations.

The sub-reports contain many valuable articles on the medical topography of particular districts and posts, written by medical officers there stationed. When all contain so much that is interesting, we are at a loss to select individual papers upon which to bestow particular commendation. Without disparagement to the others, however, we would fain attract attention to a few. In that portion of the work devoted to the northern division, we find an excellent article on the Medical Topography and Diseases of Fort Kent, by the late lamented Assistant Surgeon Wootherspoon, and in the *general remarks* on the diseases of the same region, attention is called to the rarity of malarious diseases in the sub-division comprising New England. These, when they occur, are usually in subjects lately arrived from more southern stations. Assistant Surgeon Sargent reports that in thirty-three years practice at Fort Constitution (Portsmouth harbor, N. H.), he had known of but one case of intermittent fever, not of foreign origin. Surgeon Moore gives some valuable practical remarks on scurvy. Another report relating to the diseases, etc., of Fort Fairfield, is from the able pen of Dr. Coolidge.

Dr. Isaacs (now of Brooklyn), in a report from Fort Wilkins, gives much useful information regarding the medical topography of the Lake Superior region, and also draws attention to the occurrence in 1844, of epidemic peritonitis among the soldiers at his station.

From the north interior region, west of the great lakes, we have an excellent report by Assistant Surgeon Charles C. Keeney. This, besides containing information interesting only to the medical man, gives many valuable facts regarding the geology of the country about Fort Dodge, Iowa, and the valley of the Des Moines River. The botany and zoölogy of the region are also touched upon, and add greatly to the interest of the paper.

Following this report, is one from Assistant Surgeon J. Frazier Head, giving an account of Fort Ripley, Minnesota, with its topography and diseases. As in the last mentioned article, Dr. Head gives much inter-

esting information regarding the natural history and geology of the region, and in addition, furnishes to the ethnologist much that is useful concerning the native aborigines. Embodied in the report is a valuable letter from Dr. David Day, on the same subject. Dr. Head, in speaking of intermittent fever says: "no instance is known of the disorder having originated in the territory."

Assistant Surgeon Alex. B. Hasson, gives a thorough report on similar subjects from Fort Ridgely, Minnesota. The remarks, at the close of his report, concerning the cautions necessary to be observed in the examination of army medical tables of statistics are well worthy of attention.

Among the reports on the *middle division*, is one from Assistant Surgeon L. A. Edwards, on the diseases, etc., of Fort Washington, Md. In this there is a valuable table showing the relative frequency of intermittent and remittent fevers at that post, during periods of about twenty years' interval. Dr. Edwards remarks, that he believes "that intermittent fever is not only less frequent in that neighborhood than formerly, but that it bears a milder form."

In the pages devoted to the consideration of the *interior region east*, of the same division, are some interesting observations on cholera by Surgeons Finley and Byrne,* and in the reports on the *western* section of the division, are extended papers on different districts, by Assistant Surgeon Barnes, which will repay perusal, and cover much the same variety of subjects as those alluded to from Minnesota. Dr. Ridgely gives some interesting remarks concerning the limits of malarial districts, etc.

The *southern division* has furnished reports on the peculiarities of its class of disease, which should be read by every southern practitioner. The substance of Surgeon Porter's report on the diseases of Fort Moultrie, South Carolina, had already appeared in a leading medical Journal; nevertheless its present publication, as a *connected whole*, doubles its usefulness, although the deductions drawn will scarcely be indorsed by all.

Drs. McCormick and McParlin follow, with reports containing highly useful and practical remarks concerning yellow fever and cholera.

From the second section of the south interior region, we have a capital report on the diseases, etc., of Fort Gibson, in the Cherokee nation, written by Assistant Surgeon Coolidge.

Assistant Surgeon Rodney Glisan furnishes an excellent report from Fort Arbuckle, Arkansas.

A letter from Surgeon Charles S. Tripler, contains a very full special report on cholera Asiatica, as it attacked the 4th regiment of infantry while *en route* for California.

We must here stop the critical examination of the various sub-reports from the medical officers distributed over our great national area, with simple allusion to several which especially strike our fancy. From Fort Brown, Texas, Surgeon Moore; Ringgold barracks, Assistant

* Dr. Byrne is the author of a well-known treatise on the Contagion of Cholera.

Surgeon Moses; Camp J. E. Johnston, Assistant Surgeon Swift ; Fort McKavett, Texas, Assistant Surgeon Crawford (this report contains much useful botanical information) ; Socorro, New Mexico, Assistant Surgeon J. F. Hammond ; Monterey, California, Assistant Surgeon King.

ART. VIII.—*Review of the 22d Volume of the Memoirs of the Imperial Academy of Medicine of Paris.* By J. W. GREENE, M.D.

UPON examining the recent volume of the Transactions of the French Imperial Academy of Medicine, we find that its members have recently remodelled and revised the by-laws governing their Association. As these changes are material, we have concluded in the present review to give an abstract of them for the benefit of the readers of this Journal.

The first article proclaims that the titulary members shall be limited to one hundred, and that they shall be divided into eleven sections, as follows :

Sec. 1st. Anatomy and Physiology,	10	Sec. 7th. Obstetrics,	7
" 2d. Medical Pathology,	13	" 8th. Public Hygiene and Legal Medicine and Medical Police,	10
" 3d. Surgical Pathology,	10		
" 4th. Therapeutics and Natural History of Medicine,	10	" 9th. Veterinary Medicine,	6
" 5th. Operative Medicine,	7	" 10th. Medical Chemistry & Physic,	10
" 6th. Pathological Anatomy,	7	" 11th. Pharmacy,	10
	57	+ 43 = 100.	43

The second article states, that the Free Associates are limited to the number of ten. The National Associates can be as many as twenty. The Foreign Associates are limited to the number of twenty. The number of National Correspondents is fixed at one hundred, the Foreign Correspondents to the number of fifty. The National and Foreign Correspondents are next divided into four divisions, as follows :

1st div.—Anatomy and Physiology, Medical Pathology, Therapeutics and Medical Natural History, Pathological Anatomy, Public Hygiene and Legal Medicine. The number of national correspondents 50 ; Foreign at 25.

The 2d division consists of Surgical Pathology, Operative Medicine and Obstetrics. The national correspondents are 24, the foreign at 12.

The 3d division is that of Veterinary Medicine. The national correspondents number six, the foreign three.

The 4th division is comprised of Physics, Medical Chemistry, and Pharmacy. There are 20 national correspondents and 10 foreign. The meetings are held every Tuesday at 3 o'clock P.M.; only members can assist at these reunions. There are two secretaries, one perpetual, the other annual ; the latter supplying the place of the former when absent, and forming one of the four who constitute the administrative council. All papers presented to the Academy are dated by the perpetual secretary in the order in which they arrive, and they are read

in the same order, except by vote of the Academy. If any paper is thought worthy of a particular report it is handed to a committee. This commission may number three, five, seven, nine or eleven members, according to the importance of the object. Besides these there are permanent committees, which are composed of six or nine members. These are elected each year, in December. Printed works are not subject to a report unless they are foreign. These reports can be discussed at a regular or special sitting. On the first Tuesday in May in each year there is a public meeting, at which the labors of the past year are shown; eulogies are read on members dead during the year; the names of authors who have merited prizes; the announcement of new subjects for prizes for the ensuing year, and the reading of designated papers. No discussion can take place at this meeting. No one can become a resident member, unless a regular graduate either in medicine, surgery, or received by a special school of pharmacy or veterinary medicine; and he must also make the express demand to be received. There must always be three months vacancy before a place can be filled. All demands for membership addressed to the Academy are returned by them: 1st, To the section where the vacancy exists, if of a resident member; 2d, For all the other nominations, to a special commission, composed of at least five members, elected by ballot.

The Academy shall propose, at least once a year, a subject for a prize; the paper to consist of experiments, of observations, or of positive researches. The resident members alone are excluded from this "concours."

The Academy upon the demand of government, shall choose from among its members, a committee, to be sent to any place where an epidemic is raging; to make observations upon new mineral springs; or, where public utility shall render their presence necessary.

The Academy can, at its own expense, send a deputation to attend the obsequies of any of its members.

No bust or painting of any deceased member can be placed inside the walls of the Academy, until five years after his decease.

The officers for the year 1858 are: President, Laugier; Vice President, Cruveilhier; Perpetual Secretary, Dubois (Fred.); Annual Secretary, Devergie; Treasurer, Gimelle.

By the list there are one hundred and four resident members, so there can be no election until there have been five deaths.

There are ten national associates; there should be twenty; seventeen foreign associates; full number twenty. Eighty-five national correspondents of the 1st division, these are to be reduced to fifty. Forty-five national correspondents of the 2d division, should be reduced to twenty-four. In the 3d division there is but one where there should be six. The 4th division has the right number, viz. twenty. There are fifty foreign correspondents in the 1st division, there should be but twenty-five. In the 2d division there are twenty-four, there should be but twelve. In the 3d division there are four members, should be but three; twelve members are in the 4th division, there should be but ten.

The next article in order is *The Eulogy upon Magendie*, given by the

perpetual Secretary, Dubois, at the annual public meeting held in May. He commences his oration in the words of Guizot. "Science has its sublime speculators, and its prophets, who unravel by a coup d'œil the great laws of the universe and seize them; as Columbus discovered the New World, in starting out to search for it upon the faith of an idea. Around these range themselves sagacious observers, who excel in the research of particular phenomena, prove them, describe and attach them successively to the domain of science; and in this domain so enriched enter the legislative spirits, who class the facts gathered, assign the reports, determine the laws, resolve them into general formulas, define the present state of sciences, and these then become the point of departure and the instruments of new conquests." Of these three methods of serving and enlarging science, there was one which was exclusively adopted and which this eminent physiologist extolled during the whole of his life. Magendie had nothing in common with those elevated spirits or enthusiasts, who inspired by an hypothesis, throw themselves at hazard into the field of science. Neither did he belong to those penetrating and ingenious men who hasten to coördinate and bring together general laws from facts which others have gathered. I will say more, he was rather disgusted with those wise men who performed this mission. His own, was not more humble, but more simple, and more accessible. A sagacious observer—a merciless and able experimenter, Magendie endeavored exclusively to verify and prove particular facts already announced in science. It is true that in this work of verification and demonstration Magendie did not make any important discovery in physiology, he made no new laws, but he did place in strong lights facts, that up to his time, were in obscurity; he gave certitude to facts that were till then uncertain; so that we may claim the right to place his name beside those of inventors; and in this view we can pardon his having, at times, endeavored to dispute with them the glory. The torch, almost extinguished, he relit, and with it threw light upon those parts of science then in the shade, adding the brilliancy of his own proper wisdom.

Francis Magendie was born at Bordeaux on the 6th of October, 1783. He was the son of Anthony Magendie, a surgeon. Coming to Paris, he commenced his medical studies, contended for and received the place of Interne of Hospitals; from interne he became aid in anatomy, then prosector. Many of his first papers were read before the Academy of Sciences, and were much talked of. In 1814, when the whole nation were arming for war, Magendie received an imperial decree relieving him from joining the army, which at the same time told him that he owed the favor to the success he had already met with in science. He published in 1817 an article upon the circulation. He restored to science the cephalo-rachidian liquid till that time forgotten, although before discovered by Cotugno. In 1821 he took up Charles Bell's experiments upon the nerves of motion and sensation. Bell cut the trigeminii at the point of emergence, Magendie went further and made the section inter-cranial; the integuments of the face, the surface of the palate, tongue and the interior of the nose, became insensible. In 1830

he was made Professor at the College of France, taking the chair of Laennec. From this time it became the chair of experimental physiology. He visited Great Britain; at London he exhibited some of his experiments, but the Society for Prevention of Cruelty to Animals raised such a clamor that he came near being expelled the country. An old Quaker came to Paris from America, called at the college and demanded to see Magendie; being presented, he addressed him thus: "I came to speak to thee, and I see that I have not been misinformed. They tell me that thou makest thy experiments upon living animals; I came to ask by what right thou doest so, and to tell thee that thou must cease the practice, because thou hast not the right to kill or to make the animals suffer—and also, thou settest a bad example and dost habituate others to cruelty." He rid himself of the Quaker and went on.

In 1818, he was chosen to the hospital. In 1826, he was proposed as suppléant to Salpétrière. In 1830, he was named physician to Hôtel Dieu, to which he remained attached until 1845, when he retired with the title of Honorary Physician to the Hospitals of Paris. He was chairman of the Committee of Public Hygiene; a member of the Academy of Sciences and of the Academy of Medicine, commander of the Legion of Honor, and his place in the College of France filled by an aid. He was the author of seventy-eight papers, many of them being enlarged to book form. He died on the 8th of October, 1855.

The next article in order is a *General Report upon the Prizes* given during the year 1857, by M. Depaul, Annual Secretary. The first was the prize of the Academy of the value of 1,000 francs. The question was, "To determine by clinical facts the degree of usefulness of permanent counter-irritation in the treatment of chronic diseases." The question was not answered satisfactorily; the prize was withheld, but 600 francs were given as a recompense to Dr. Zurkowski, the author of the best monograph.

The second best paper was by Dr. Tertre Vallier. He received 400 francs as an encouragement.

The third paper, by Dr. de la Garanderie, received the first honorable mention. Dr. Revillont received the second honorable mention.

The prize founded by Capuron for Accouchments, was contended for by four competitors; none however received it. The question was, "*Sudden death in the Puerperal State.*"

The next reports, upon *Nervous Vertigo*, traces with care the differential diagnosis, to signalize the characters which distinguish it from vertigo produced by plethora, by anemia or by an organic cerebral lesion, and indicate the particular treatment. The prize was given to Dr. Max Simon. Drs. Trastour and Newcourt received the first and second honorable mention.

Lefever's Prize, value 1,800 francs, *on Melancholy*, was concoured for, but no prize was given. 800 francs were given to Dr. Charrier as an encouragement, and 400 francs for the same purpose to Dr. la Tertre Vallier, and also 400 francs to Dr. Joseph Rotta.

Baron Barbier's Prize of 3,000 francs, to be given to any one who should discover a complete means of cure for any of the diseases generally considered incurable. Dr. Bourgoyne finds a complete identity between the producing causes of cholera and pernicious paludean fevers; conducted by this luminous idea, he gives pills of tannate of quinine, camphor and opium. These are so efficacious, that whenever he is called early the patient always recovers.

Dr. Vrancken has also discovered what he considers an infallible cure. Eight grammes of chlorohydric acid are mixed with a quart of water. To quote him, this is given "en quantité modique, mais souvent répétée." Of this, about three quarts are considered sufficient in twenty-four hours to cure anything. Women, old men, children, are cured rapidly.

Dr. Garnaut prefers acetic acid. This discovery was made by accident. A patient, by an error, swallowed a glass of vinegar that had been used for the purpose of rubbing him. He was cured. This was a ray of light for our confrere. The antidote to the choleraic poison was found!

There are many other modes of treatment quite as ludicrous.

Messrs. Bachelet and Froussard attempt to cure hydrophobia. They think it proceeds in the dog from excess of continence, so they recommend castration.

The d'Argenteuil Prize was not given this year in consequence of the number of monographs, the committee not having had the time to come to a decision. Its value is 12,000 francs.

Silver medals were given to Drs. Gestin, Brouillet, Perrochaud, Raimbert, Ragaine. Bronze medals to Drs. Duclaux, Jobert, Lemoine, and Gauné.

The next article is a discourse pronounced by Michel Levy at the inauguration of the statue of Geoffroy St. Hilaire, at Etampes, in October, 1857. There is also a report upon the epidemics in France during the year 1856, made in the name of the Commission of Epidemics, and read to the Academy in October, 1857, by M. A. Trousseau.

Next comes a general report upon the mineral waters of France, made by Dr. Guerard, read before the Academy, November, 1857.

Of Nervous Vertigo and its Treatment. By DR. MAX SIMON. Paper "Couronné," by the Academy of Medicine of Paris.

The author devotes the first chapter entirely to general considerations; the second to the history of the disease. Commencing with Hippocrates, he mentions Galen, Aretæus, whom he places next to Galen as emitting the most valuable ideas on the subject, Actius, Avicenna, Oribasius, Fernel, Baillou, Sydenham, Baglivi. Up to this time, although the disease was known, it had been confounded with others. But Sydenham seized it; Boerhaave equally well observed it; Van Swieten, Sauvages, Gorter, Clouquet, Krauss, Herz, Tissot, C. Franck, Hufeland, J. Franck, also happily recognized it.

The third chapter is occupied in proving the reality of nervous ver-

tigo. All the authors from Galen to Sauvages, and from Sauvages to Sandras and Trousseau, who have occupied themselves with vertigo, have studied it as a simple sympathetic neurosis, or an essential neurosis. Most persons are subject to vertigo from slight causes, as waltzing, riding rapidly, being at great heights, etc.

In the *fourth chapter*, he treats of the definition and nature of nervous vertigo. He defines it to be a painful illusory turning, which seems to carry with it the person and external objects, whether they are in repose or in movement, and where the body totters and is ready to fall. This definition, which he borrows from P. Franck, he accepts so far as it relates to exactly the vertiginous sensation conceived in an abstract manner, but he does not give it the extended signification of Franck. All modern physicians have studied this disease as a symptom and as an essential disease. Authors who have written on this subject have studied it and treated it as a particular perturbation of nervous function, and these have embroiled the whole question by their tendency to see the affection as an essential instead of an accident in many cases.

He finds it impossible to localize the trouble to a limited extent. It is never dangerous—never produces death. Is the point of departure to be placed in the peripheric nerves, in the organ of vision, in the nervous cords, or in the centre of perception itself? Piorry establishes the fact, that in a certain number of cases the "migraine" is a neurosis of the iris with an ambient iridiation more or less extended.

The *fifth chapter* divides the subject. In the first group he places those who, attacked by vertigo, do not offer to the observation, either from the nervous system or from any of the other systems, any trouble, either static or dynamic, which can hold this accident in dependence. This is idiopathic vertigo, properly so called. In the second group are placed those in whom the vertigo starts from a purely functional derangement of an organ other than the brain, mingles itself with various accidents, but is detached, nevertheless, by the clearness of its manifestations, its intensity, the frequency of its reappearance, and its duration. This is sympathetic vertigo. There is one function in the economy whose perturbations frequently give rise to vertigo. This is the genital, when disturbed by masturbation, excess of coitus, spermatorrhœa, and in rare cases continence. He calls attention to the fact, that many patients are bled, blistered, and starved, because the physician does not understand the disease.

Chapter sixth treats of the symptomatology and preliminary considerations. The vertiginous sensation, when we see it clear and distinct, cannot declare to us the dynamic or static condition of the phenomenon. It is useful for symptomatologists to study this sensation in some of the circumstances where it is produced without being a disease, properly so called. The study of this subjective side of the phenomenon is here more necessary, for, to tell the truth, in the primitive nervous vertigo frequently the vertiginous sensation constitutes all the disease, in so much, at least, as an intermittent manifestation, producing itself at intervals more or less long. A common cause of vertigo is

mounting to an elevation and looking freely down and around. In this case the vertigo consists, ordinarily, in a sentiment of instability, provided there are safeguards to prevent the persons falling; but should these be absent, the illusion is carried past this, to the annihilation of view, to scotodinia, and his fall will be inevitable. In such a case, it is evident that the vertigo, in the first phase of its development, is a physical phenomenon unknown in its nature, but which, one degree more advanced in its manifestation, a physical influence, fear, comes to mingle itself with this first impression to give it a more decided character.

The result is not the same when the vertigo results from the action of turning rapidly as in the waltz, or by looking at anything that is whirling rapidly itself, or by the uniform and continued movement of a large body of water. Here it is not the sentiment of instability, but the primitive character of vertigo, the visual illusion. Primitive or idiopathic nervous vertigo, like all neurotic vertigo, is submissive to the law of periodicity; but while in many other diseases the organism attentively interrogated presents frequently some phenomena which reveal more or less surely the morbid servitude which weighs upon the nervous system, nothing in pure vertigo betrays it outside of its access. Most of the neurotic troubles are produced again and again by the same exciting causes, nothing of this kind takes place in nervous vertigo, once the access terminated, the impression is completely effaced; when the vertigo is simple, it is only a passing accident of the nervous system, which receives no durable attack or none capable of reproducing itself in the intervals of access of the disease, by any symptom which would betray it before the development of the disease itself. These irregular periodical accesses by which nervous vertigo manifests itself, and which in the state of science are the sole means given to our observation, are the ones by which we intend studying the disease. The phenomena present themselves under various forms and in different degrees of intensity. These varieties of form and of intensity constitute all the symptomatology. Some persons are troubled with vertigo even when in the horizontal position and with the eyes shut, others when rising suddenly from a recumbent position; this latter can be avoided generally by rising carefully. When the vertigo is more intense, the patient becomes fearful, sees objects as through a veil or has illusory visions, luminous sparks are seen, sometimes he falls, but falls voluntarily, so to speak, not as in an epileptic or apoplectic fit; he does not lose his senses. If by chance he does, it appears to be from the fear, not from the functional cerebral trouble. When the disease arrives at this point, the general circulation, which is calm in simple vertigo, is more moved, the pulse is accelerated, but the skin does not appear to increase in heat proportionately; sometimes there is nausea, followed by vomiting, which generally puts an end to the trouble; but these latter difficulties are rare in simple vertigo, they are generally found in complex cases. The second article takes up the consideration of this subject of sympathetic vertigo caused by dyspepsia. He speaks of the great sympathy existing between the stomach and other organs, and states cases where

this vertigo has been produced by a few glasses of soda water, wine, or by articles of food. Article third treats of vertigo produced by hypochondria, venereal excesses and spermatorrhœa. He states that these cases are not rare. In speaking of that caused by seminal losses, he says, before the excessive losses have thrown the organism into that grave state called tabescence, and have extinguished in the genital apparatus all force of reaction, each venereal excess, either by coitus, or by masturbation has a direct reaction upon the nervous system, which receives a more or less profound blow, and the nervous vertigo results from this perturbation. He also cites cases produced by excessive continence. Article fourth is devoted to vertigo during the convalescence from other diseases. Article fifth treats of sea-sickness or marine vertigo.

Chapter seventh is occupied by the progress, termination and prognostic. Nothing is more irregular in its progress. It has continued with variable intermittences nearly the whole life, or it may be of very short duration. The access is also very irregular and comes on from the most varied causes. Vertigo, considered as a pure neurosis, is very generally of little account so far as life is concerned.

Chapter eighth is upon the differential diagnosis and is divided into paragraphs, the first of which treats of vertigo produced by anemia; the second of vertigo in a plethoric condition; the third, vertigos caused by organic diseases of the brain.

Chapter ninth is devoted to the etiology of the disease, which is classified under two heads. Causes of idiopathic vertigo and the causes of sympathetic vertigo.

Chapter tenth, the concluding chapter, applies itself entirely to the treatment. He first speaks of the momentary vertigo which he calls physiological vertigo. For this kind he recommends the patient to accustom himself to the things that produce the trouble, perseverance in this will cure the disease, he thinks. The next in order is idiopathic vertigo. In this disease the patient is to be placed horizontally, unless he is easier in some other position, as sometimes happens. The clothing should be loosened, he must be perfectly quiet, the room must be quite dark; when the patient loses his senses, the same means are recommended, with the addition of dry frictions—alcoholics, aromatics, coffee, or the inspiration of ammonia; during the intermissions, castoreum, camphor, or the tempering powder of Stähl; Pitcairn speaks well of opium. The vertiginous habit should be combated; this depends upon the morbid activity of the encephalon; regulate the life of the patient; let them follow hygienic laws. The intervals between the repasts must not be too long; the patients must avoid as much as possible all saddening emotions, and everything that will weigh upon the mind. They must avoid all drinks or food that generally disagree with them. Most usually decoctions of sage and mint, etc., are found to be very useful. Valerian and assafœtida were much used by Herz. Attention must be paid to the bowels as there is generally constipation. The datura stramonium was used by Abercrombie with success. In many cases moral force is necessary. It is necessary that the practitioner should be careful not to confound the idiopathic form with the plethoric.

Vertigo depending upon dyspepsia is a variety more amenable to treatment than any of the other forms. This form generally depends upon a hypersecretion of acid in the stomach. Magnesia, lime water, pastilles, Vichy water, etc., are the best means of satisfying the first indication. Sometimes the intestines are so irritable that the slightest causes may produce diarrhœa. In these cases the alkaline waters are very beneficial; but this medication only removes the trouble temporarily. Trousseau recommends this to be prolonged after the patient feels well. When the patient can do it, travel, combined with the use of mineral waters, is good. This treatment is only to be used when the disease is light. When the stomach has undergone profound alteration, or a saburral state has taken place, an emetic or purgative may be given; this done, we may then return to the alkaline treatment. The diet must be strictly attended to. Bitters, the excitant tonics, etc., may be given with success. Attend to the bowels; if they are not relieved by the common methods, 10 or 15 grammes of senna, with 10 or 15 drops of cherry laurel water, may be given.

Nervous vertigo from hypochondria, spermatorrhœa, and venereal excess.—It is not necessary to go at length into this treatment, as it is only that of the diseases mentioned. In regard to spermatorrhœa, he recommends lupulin, which he considers the opium of the generative apparatus.

The vertigo during the convalescence from diseases, as fevers.—Ducher and Widel used cinnabar in these cases, and report four cures. He does not think that quinine is of benefit in this kind of vertigo following intermittents, but prefers the general tonics.

Nautical vertigo.—He recapitulates many popular remedies that have been tried, but thinks that keeping in the open air, smelling salts to combat the syncopal tendency, not to look at anything movable, not to take part in arguments, eating the meals on deck, mint water, aromatized pastilles, a belt around the stomach moderately tight, which must not press on the chest. If the vomiting comes on with all these precautions, then the patient must take the horizontal position; he may then have tea, infusion aromatic, grog, etc.

Arthritic or gouty vertigo.—He states that it is with extreme circumspection that he expresses himself upon the reality of this variety of nervous vertigo. He cannot deny in an absolute manner the reality of connection in certain cases between the arthritic diathesis and the vertiginous habit. The authorities who have written on the subject suffice to place it on the nosological catalogue. He does not pretend to do it, but only to call the attention of practitioners to the facts.

The Academy offered a prize of 1,000 francs for the best paper upon the question, "*To determine by clinical facts the degree of usefulness of permanent counter-irritation in the treatment of chronic diseases.*" The question not being answered satisfactorily, the Academy withheld the prize, but gave 600 francs as a recompense to Dr. Zurkowski, the author of the best monograph. He restrains the list in which counter-irritants may be used, and does not occupy himself with a great number of constitutional affections, for the cure of which practitioners have

recommended this means of cure. He does not attach any importance to the form of the counter-irritant. The suppuration is the valuable part of the process. In Potts' disease he reports twenty cases of cure in thirty-eight cases. In twenty-two only of these cases were the exutorics applied through the course of the disease, while in the others they were applied intermittently. The results were almost the same in general paralysis, amaurosis, different forms of ophthalmia, deafness, chronic diseases of the respiratory, abdominal, and genito-urinary organs. A long chapter is devoted to phthisis pulmonalis, and he relates twenty-five cases of cure by this means. In chronic rheumatism, neuralgia, and divers forms of mental alienation, he gives two hundred and sixty-two cases, and all were more or less benefited by this form of treatment.

ART. IX.—*Trials of a Public Benefactor, as Illustrated in the Discovery of Etherization.* By NATHAN P. RICE, M.D. New York: Pudney & Russell, 1859, pp. 460.

IT appears, from a card prefacing this work, that the author was encouraged in its preparation and publication by several of our most prominent medical men, officiating as the Executive Committee of the Physicians and Surgeons of New York.* After premising that the author is fully competent to the task, they add: "A work on this subject, executed with candor, with becoming accuracy of detail, and with completeness, must be not only of temporary, but also of permanent interest, both to the profession and the public."

In our notice of this work, we shall pass over such portions as are not of a strictly scientific character, and confine our attention entirely to matters of professional interest; nor shall we attempt in this brief space to discuss, much less to solve, the mooted questions arising out of the numerous claims to the honor of discoveries in anæsthesia. Taking the work before us with its high sanction as our guide, we shall present briefly the facts relating to Dr. Morton's career, as collected from various sources by Dr. Rice.

From this narrative it appears that Dr. Morton's attention was called to the subject of anæsthesia not by observing the effects of any benumbing agent, but from the necessity he experienced in the practice of his profession, of having the power to extract teeth without pain. To accomplish this object, opium was resorted to in large doses, and alcoholic liquors, but with indifferent success.

In July, 1844, while operating upon a sensitive tooth, he applied to the gum a little common sulphuric ether, the benumbing effects of which, when thus locally employed, though he formerly knew, now exceeded his expectations, and the thought occurred to him, that if the whole system could thus be rendered insensible, his object would be accomplished. The recollection of the inhalation of nitrous oxide gas and ether in

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* *This card is signed by* DRS. JOHN WATSON, WILLARD PARKER, JOHN W. FRANCIS, GURDON BUCK, JAMES R. WOOD, VALENTINE MOTT, JOSEPH M. SMITH.

small quantities for amusement at school, led him to experiment upon animals and birds, but his success did not warrant his expectations.

During the following winter, Dr. Morton witnessed the exhibition of nitrous oxide gas, in the Harvard Medical School, for the purpose of extracting a tooth, but the operation was not wholly successful. It, however, had the effect to stimulate him in the pursuit of his favorite object, and in his various studies and inquiries he gathered many useful facts, leading finally to the settled conviction in his own mind, that sulphuric ether could be administered by inhalation to the point of complete anæsthesia. In June, 1846, Dr. Morton seems to have first obtained success on administering sulphuric ether to a dog; it became completely insensible to all external violence during inhalation, but soon recovered consciousness on the removal of the ether. But it was not until the 30th of the following September that he produced such complete anæsthesia in the human subject that an operation was performed without pain. This case occurred after having himself inhaled ether to complete insensibility, and is thus detailed by Dr. Morton: "Delighted with the success of this experiment, I immediately announced the result to the persons employed in my establishment, and waited impatiently for some one upon whom I could make a fuller trial. Toward evening, a man residing in Boston came in, suffering great pain, and wishing to have a tooth extracted. He was afraid of the operation, and asked if he could be mesmerized. I told him I had something better, and saturating my handkerchief, gave it to him to inhale. He became unconscious almost immediately. It was dark, and Dr. Hayden held the lamp while I extracted a firmly-rooted bicuspid tooth. There was not much alteration in the pulse, and no relaxation of the muscles. He recovered in a minute, and knew nothing of what had been done to him. He remained for some time talking about the experiment. This was on the 30th of September, 1846. This I consider to be the first demonstration of this new fact in science. I have heard of no one who can prove an earlier demonstration. If any one can do so, I yield to him the point of priority in time." Several other cases followed in quick succession, and the matter being made public through the newspapers, these operations were attended and witnessed by several prominent medical gentlemen.

At this point in his narrative Dr. Rice introduces an interesting sketch of anæsthesia, from the first mention of its occurrence in the human subject to the time of its complete elucidation. In the history of all discoveries we may detect the foreshadowing of the great event often centuries in advance, and not unfrequently some ardent adventurer has blindly grasped the secret clue, but has failed to follow it to its source. So anæsthesia, local and general, by gases inhaled, and infusions drank and applied, has been known from the earliest periods of human history, but it was reserved to the restless, inventive and inquisitive genius which characterizes the sciences of the present century, to wrest from nature this hidden blessing, and bestow it upon its rightful recipient—man.

According to Dr. Rice, the 16th day of October, 1846, is rendered

memorable by the first public exhibition of sulphuric ether as an anæsthetic agent in surgical operations. This event occurred in Massachusetts General Hospital, in a patient of the late Dr. John C. Warren, and is thus related in the records of that hospital :

"This case is remarkable in the annals of surgery. It was the first surgical operation performed under the influence of ether. Dr. Warren had been applied to by Dr. Morton, a dentist, with the request that he would try the inhalation of a fluid, which he said he had found to be effectual in preventing pain during operations on the teeth. Dr. Warren, having satisfied himself, that the breathing of the fluid would be harmless, agreed to employ it when an opportunity presented. None occurring in private practice within a day or two, he determined to use it on this patient.

"Before the operation began, some time was lost in waiting for Dr. Morton, and ultimately it was thought he would not appear ; at length he arrived, and explained his detention, by informing Dr. Warren, that he had been occupied in preparing his apparatus, which consisted of a tube connected with a glass globe. This apparatus he then proceeded to apply, and after four or five minutes, the patient appeared to be asleep , and the operation was performed as above described. To the surprise of Dr. Warren, and the other gentlemen present, the patient did not shriek or cry out ; but during the insulation of the veins, he began to move his limbs and utter extraordinary expressions. These movements seemed to indicate the existence of pain, but after he had recovered his faculties, he said he had experienced none, but only a sensation like that of scraping the part with a blunt instrument, and he ever after continued to say he had not felt any pain. The result of this operation led to the repetition of the use of ether in other cases, and in a few days its success was established, and its use resorted to in every considerable operation in the city of Boston and its vicinity."

Several minor operations followed, equally successful, and on the 7th of November, amputation through the thigh was performed upon a female anæsthetized, without pain or ill effect. Thus was established beyond a peradventure this important fact, that sulphuric ether may be administered to the human subject to the extent of totally obliterating all sensibility without ill consequences. A greater event in the history of man can scarcely be conceived. The venerable Dr. Warren thus gave eloquent utterance to his sentiments :

"A new era has opened on the operating surgeon. His visitations on the most delicate parts are performed, not only without the agonizing screams he has been accustomed to hear, but sometimes in a state of perfect insensibility, and, occasionally, even with an expression of pleasure on the part of the patient. Who could have imagined that drawing a knife over the delicate skin of the face, might produce a sensation of unmixed delight? That the turning and twisting of instruments in the most sensitive bladder, might be accompanied by a delightful dream ? That the contorting of anchylosed joints should coexist with a celestial vision ? If Ambrose Paré, and Louis, Dessault, and Cheselden, and Hunter, and Cooper, could see what our eyes daily

witness, how would they long to come among us, and perform their exploits once more.

"And with what fresh vigor does the living surgeon, who is ready to resign the scalpel, grasp it, and wish again to go through his career under the new auspices. As philanthropists we may well rejoice that we have had an agency, however slight, in conferring on poor suffering humanity so precious a gift. Unrestrained and free as God's own sunshine, it has gone forth to cheer and gladden the earth; it will awaken the gratitude of the present, and of all coming generations. The student, who,from distant lands or in distant ages, may visit this spot, will view it with increased interest, as he remembers that here was first demonstrated one of the most glorious truths of science."

The news of this great discovery now spread far and wide, and congratulatory notices filled the public prints. It was hailed abroad with the greatest possible enthusiasm, and on the 18th of December, was first successfully employed in London. The *Illustrated London News* of January 9th, 1847, contains the following:

"Last week the first experiment was made in this country, of employing the inhalation of the vapor of sulphuric ether as a means of rendering surgical operations painless. The application is of American origin, and was first introduced, a few months since, by Dr. Morton, a dentist of Boston, United States, by whom it was communicated to Dr. Boot, of Gower street. By this gentleman the discovery was described, on the 17th of last month, to Mr. Robinson, the surgeon dentist, also of Gower street, who, on the following day, operated upon a young lady, thrown into sleep by the inhalation, during which a molar tooth was extracted from her lower jaw. The inhalation occupied a minute and a half, and the patient's recovery from sleep another minute. Dr. Boot questioned her respecting the tooth, and she expressed her great surprise on finding that it was removed. She said that all she had felt was merely a sensation of cold around the tooth—a sensation which was caused, perhaps, by the coldness of the extracting instrument."

The London *Lancet* said of the discovery: "The discovery of Dr. Morton—more striking to the general than to the scientific mind—will undoubtedly be placed high among the blessings of human knowledge and discovery. That its discoverer should be an American, is a high honor to our transatlantic brethren; next to the discovery of Franklin, it is the second and greatest contribution of the New World to science, and it is the first great addition to the medical art. Dr. Morton deserves, if his discovery stands the test of time, the gratitude and reward of every civilized people and government upon the face of the earth."

Liston, wrote on the 21st of December: "I tried the ether inhalation today, with perfect and satisfactory results. It is a very great matter to be able thus to destroy sensibility, to such an extent, without apparently a bad result. It is a fine thing for operating surgeons; and I beg to thank you sincerely for the early information you were so kind as to give me of it." Sir James Clarke, in speaking of this case of amputation, performed by Liston after the administration of ether, said: "It

is really a marvellous thing." Richard Bright forwarded the news to Guy's Hospital, "that no time might be lost in affording so great a relief to any who might be in the unfortunate condition of being obliged to undergo a serious operation."

Prof. Miller, of Edinburgh, said "On the 23d of December, 1846, it was my privilege to read a letter in this class-room, from the late Mr. Liston, announcing in enthusiastic terms, that a new light had burst on surgery, and that on mankind a large boon had been conferred. The letter conveyed the writer's earliest and most lively impressions of a subject as startling as it was new; and there was a large-hearted generosity about it that was sure to meet with a suitable response in all right-beating hearts. The subject was anæsthesia; and its first sound had come from across the Atlantic. It fell on no dull or idle ear. It was taken up, tried, and speedily reëchoed, and in a few days it filled the island. Mr. Liston struck the key-note, and a pealing note it was. We followed here with less power, perhaps, but we hope, in tune—well pleased to find, that high as the note at first seemed to be, it was still within reach of an ordinary compass. The profession were surprised, excited, charmed in the mass."

As early as the 21st of December it was used in Paris, first by M. Jobert (de Lamballe) and afterwards, by Malgaigne. On the first of February, Velpeau and Roux declared in the presence of the two Academies, that the discovery "was a glorious triumph for humanity." Such is a brief sketch of the discovery of the anæsthetic properties of sulphuric ether, its final publicity and reception by the world, as given in this volume. Unfortunately the work does not conclude with the chapter which announces the triumph of anæsthesia. A long and tedious sequel follows, which we have neither the time, nor space, nor heart to analyze. It is a record of the struggles of rival claimants for the honor of giving to the world this new fledgling of science, which finds an analogy in the early history of nearly every discovery. To assertion and asseveration succeed calumniation and detraction. Fact and fiction, truth and error, are so intermingled that the scientific world even is bewildered, and at a loss on whom to bestow the meed of praise. But time, which assuages all human passions, and finally assigns to pretension and true merit, their proper places, will give to the benefactor of his race his appropriate niche in the Temple of Fame.

In Chapter X., Dr. Rice details the history of the Patent which Dr. Morton secured. The following considerations led to this step.

1st. He wished to make such modifications as experience might suggest as regards the method of exhibition.

2dly. He wished to instruct a suitable number of competent persons, who, when wanted, could go to any part of the country and administer it themselves, until its merits were fully established.

3dly. He wished to prevent its being at its infancy brought into disrepute or doubt, by ever being used at the hands of injudicious, or unskilled persons; for, to quote from one of his private circulars, he knew that "asphyxia and etherization are two different things."

Dr. H. J. Bigelow, of Boston, thus comments upon this act: "This

was not done without mature consideration on his part, and after conferring with several upon whose judgment he relied. The objections which could be made against this by some, bear against Dr. Morton only on the broad abstract ground that any discovery which can be made conducive to the physical well-being of mankind, should be freely and gratuitously thrown open to it. Laws have been passed by medical societies to enforce this upon their members; but this did not affect the case of Dr. Morton, as he was not then a member of any medical society.

"No one will deny that he who benefits the world should receive from it an equivalent. The only question is, of what nature shall the equivalent be? Shall it be voluntarily ceded by the world, or levied upon it? For various reasons, discoveries in high science have been usually rewarded indirectly by fame, honor, position, and occasionally, in other countries, by funds appropriated for the purpose. Discoveries in medical science, whose domain approaches so nearly that of philanthropy, have been generally ranked with them; and many will assent with reluctance to the propriety of restricting, by letters patent, the use of an agent capable of mitigating human suffering. There are various reasons, however, which apologize for the arrangement which I understand to have been made with regard to the application of the new agent:

"1st. It is capable of abuse, and can readily be applied to nefarious ends.

"2d. Its action is not yet thoroughly understood, and its use should be restricted to responsible persons.

"3d. One of its greatest fields is the mechanical art of dentistry, many of whose processes are by convention secret, or protected by patent rights. It is especially with reference to this art, that the patent has been secured."

It does not seem, however, to have been Dr. Morton's intentions to restrict the use of ether. It was freely offered to the Massachusetts General Hospital, and other institutions, and it was even used in the U. S. Army without regard to the patent. Dr. Morton's friends desiring to see him properly rewarded, and all restrictions removed, petitioned Congress to purchase the patent.* This movement was the beginning of a new act in the drama.

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* *To the Senate and House of Representatives of the United States of America, in Congress assembled.*

"The undersigned, physicians and surgeons of the Massachusetts General Hospital, beg leave to represent—

"That, in the year 1846, a discovery was made in the city of Boston, by which the human body is rendered insensible to pain, during surgical operations, and during other serious and violent affections, by means of the vapor of ether inhaled into the lungs;

"That a patent for this discovery was taken out by two citizens of Boston, by whom the first satisfactory experiments on the prevention of pain by this means had been made; and the first capital operations, conducted under the influence of this agent, were performed in the Massachusetts General Hospital, by the surgeons of that institution;

The fierce controversy which has grown out of this discovery, has principally centered upon the efforts of Dr. Morton to obtain a pecuniary remuneration from Congress. Three times his claims, as the discoverer of anæsthesia, have been laid before that body, and pressed with the highest medical * and legal influences. To the voluminous

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"That the success of this method of preventing pain has been abundantly and completely established by one hundred and fifteen operations performed in said hospital during the last year, and by a still greater number out of it in the city of Boston.

"And, in all cases within the knowledge of the undersigned, it has greatly mitigated, or wholly prevented, the pain, when skillfully administered, and in no case has any fatal or disastrous consequence followed its use, within their observation; and although inconveniencies and temporary disturbances of the nervous system have sometimes followed its application, yet these are exceptions to the general rule, and are not more common than those which result from the employment of other powerful medicinal agents, and are incomparably less distressing than the evils they are employed to obviate.

"The undersigned have reason to believe, that, since the introduction of this process, some thousands of persons have inhaled ether in Boston and its vicinity, with impunity and benefit; that its value is already recognized, and its employment introduced into most parts of Europe; that the use of the process ought to be, and, by judicious arrangements, probably will be, extended into all parts of the United States; and that no discovery in medical science, during the present century, has relieved as much suffering, and conferred so great a benefit on humanity, as the discovery of the power and application of ether.

"The undersigned are aware, that the power of ether to produce insensibility, and even death, when improperly used, was known in Europe many years ago. They are also aware, that other aëriform bodies have been experimented on, and the vapor of ether itself unsuccessfully tried, by other individuals, in surgical operations; but they are satisfied, that the safety of the process, and the effectual mode of applying it, were first made known in Boston, in 1846.

"Understanding that the use of this important discovery is now restricted by letters-patent granted from the office of the Secretary of State, and believing that it is the policy of wise governments to diffuse among their constituents the blessings of such discoveries as tend to alleviate human suffering, and, at the same time, to reward those who have conferred such benefits upon the world—the undersigned respectfully pray, that such sums as shall be thought adequate may be paid by the government of the United States to those persons who shall be found, on investigation, to merit compensation for the benefit conferred on the public by this discovery, and on condition of the relinquishment by them of any patent right they may hold restricting its use.

(Signed)

"John C. Warren, Jacob Bigelow, Geo. Hayward, Enoch Hale, S. D. Townsend, John D. Fisher, H. I. Bowditch, O. W. Holmes, J. Mason Warren, Samuel Parkman, Henry J. Bigelow.

"Boston, *Nov.* 20, 1847."

* The following memorial was presented to Congress:

"*Memorial to the honorable the Senate and House of Representatives of the United States in Congress assembled:* The undersigned hereby testify to your honorable body, that, in their opinion, Dr. William T. G. Morton, first proved to the world, that ether would produce insensibility to the pain of surgical operations, and that it could be used with safety. In their opinion, his fellow men owe a debt to him for this knowledge. Wherefore, they respectfully ask a recognition by Congress of his services to his country and to mankind.

"John C. Warren, M.D., George Hayward, M.D., S. D. Townsend, M.D., J. Mason Warren, M.D., S. Parkman, M.D., Henry J. Bigelow, M.D., Henry S. Clark, M.D., Jacob Bigelow, M.D., Oliver W. Holmes, M.D., Henry I. Bowditch, M.D., D. Hum-

documentary evidence which was thus accumulated, we refer all who desire to study the questions raised and discussed by rival claimants. It is sufficient for our purpose to state, that Dr. Morton failed to obtain remuneration from Congress, although his claims were acknowledged and sustained by the most eminent men. The question finally turned upon the validity of the patent, and his rights under it. The delay, perplexities, and embarrassments attending these investigations have resulted in a practical abandonment of the effort to obtain remuneration from Government.

The expenses attending the experiments with ether, the loss of time, and the efforts to establish its introduction, and maintain his claims to the honors and awards of the discovery of anæsthesia, appear not only to have exhausted the pecuniary resources of Dr. Morton, but to have involved him in embarrassing and harassing financial difficulties. To relieve him of these, and to bestow that reward which Government acknowledged due, but withheld, the citizens of Boston have inaugurated a movement designed to establish a "national testimonial," consisting of voluntary contributions to a fund in behalf of Dr. Morton,*

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phrey Storer, M.D., M. S. Perry, M.D., James Jackson, M.D., George C. Shattuck, M.D., John Jeffries, M.D., Edward Reynolds, M.D., Walter Channing, M.D., John Ware, M.D., John Homans, M.D., Wm. J. Dale, M.D., John L. Fox, M.D., Wm. Ingalls, M.D., S. L. Abbott, M.D., Henry W. Williams, M.D., M. H. Childs, M.D., R. W. Hooper, M.D., George A. Bethune, M.D., Edward Reynolds, M.D."

Signed also by nearly all the members of the Mass. Med. Soc.

* The following appeal forms the basis of this movement: "The power of etheric vapors to produce a safe insensibility to pain during surgical operations, and on other occasions of great physical suffering, is one of the most beneficent discoveries that has been conferred upon the human race. It is generally conceded that Dr. W. T. G. Morton, of Boston, was instrumental in presenting this fact to the world. Nearly the whole of the medical profession of this city, in the midst of whom the discovery was made, together with other bodies of competent persons who have investigated its origin, have, after careful scrutiny, concurred in assigning this merit to Dr. Morton, and public opinion has long since affirmed their verdict.

"It is not necessary to enter in detail into the circumstances which have prevented Dr. Morton from receiving any pecuniary benefit from this discovery. The fact is certain that Dr. Morton has been an instrument, under Divine Providence, of introducing to the world one of the most remarkable discoveries of this or any other age, and that he has received no reward for it, but the consciousness of having done so. We are sure that we interpret the feelings of thousands, when we say that a substantial national memorial should be presented to Dr. Morton. . . . . We think that the people of the United States, acting individually, should do what their government has neglected, or been unable to do. National testimonials, established by the voluntary contributions of individuals, have been adopted in all countries, to mark the public sense of services to the human family, especially when such services have reflected honor and distinction upon the country where they have been performed.

"We propose that a national subscription be instituted, the avails of which shall be paid into the hands of Thomas B. Curtis and Charles H. Mills, Esqrs., as Trustees—to be held, appropriated, and invested upon such trusts, and for such uses, for the benefit of Dr. Morton, as the trustees may determine.

"James Jackson, Jacob Bigelow, S. D. Townsend, John Jeffries, Edward Reynolds, John Homans, M. S. Perry, O. W. Holmes, John Ware, George Hayward, J. Mason Warren, Henry J. Bigelow, Charles G. Putnam, Richard H. Dana, jr.,

The subscriptions in Boston have been large and numerous, and heading the medical institutions, the Massachusetts General Hospital subscribed $1,000.

A similar appeal has been issued in this city, indorsed very generally by the medical profession, and several of our institutions have subscribed liberally to this fund.*

Alexander H. Vinton, S. K. Lothrop, John B. Fitzpatrick (Bishop of Boston), William H. Prescott, N. Adams, Rufus Choate, Charles P. Curtis, F. C. Loring, G. S. Hillard, William Dehon, Benjamin Peirce, F. D. Huntington, Henry W. Longfellow, Jared Sparks, R. B. Forbes, P. W. Chandler, Alexander H. Rice, Robert C. Winthrop."

* The following extracts are from the appeal of the medical profession of New York: "The first great triumph of placing in the hands of the profession an agent capable of rendering the patient safely, and, at will, utterly insensible to the stroke of the surgeon's knife, was in detecting and establishing by experiment the anæsthetic powers of sulphuric ether. For this discovery the world is indebted to Dr. Wm. T. G. Morton, of Boston. Whatever may have been the steps preliminary to this remarkable discovery, Dr. Morton's claim to it is established beyond all controversy, and his merit, in this respect, with those who have taken the trouble to inform themselves on the subject, can be no longer a question of dispute. . . . . .

"In view of these advantages from the use of anæsthetics, we feel that Dr. Morton—the first to demonstrate their safety and efficiency, and to establish them in general practice—has conferred a boon upon humanity as imperishable as it is important, and one of such a character as to entitle him to rank among the benefactors of mankind.

"As members of the medical profession of the city of New York, and as physicians and surgeons to the various hospitals and infirmaries in this city, and its vicinity, we therefore rejoice to learn that a movement has been commenced by our professional brethren and other gentlemen of Boston, to establish a national testimonial, by voluntary subscription, for the benefit of Dr. Morton. In this movement, after full deliberation and consultation among ourselves, we are ready to participate in accordance with the plan of those who originated it, which plan is set forth by the gentlemen of Boston in their appeal.

"Under governments more arbitrary and restrictive than our own, but more capable of meeting the claims of science, the awards of merit are not usually left, as with us, to the bounty of private individuals. Discoveries and improvements of infinitely less importance to science or humanity than that for which we are indebted to Dr. Morton, are, at the courts of Europe, promptly met by national honors and emoluments.

"In our own country, it is true, the national government, after carefully investigating Dr. Morton's claims, has acknowledged the benefit he has conferred upon it, but has nevertheless failed as yet to supply the recompense.

"What the government, in this respect, has failed to do, it is to be hoped, for the credit of the American name, and from the noble individual examples already set, that the discerning and liberal people of the United States will not leave entirely unaccomplished."

This appeal was signed by Drs. Valentine Mott, John W. Francis, Willard Parker, Thomas Cock, etc.; by the physicians and surgeons of all the medical institutions of the city; by the professors of the several medical colleges, and by the following members of the Academy of Medicine:

President—J. P. Batchelder, M.D. *Vice Presidents*—John Watson, M.D., Wm. H. Van Buren, M.D, S. Conant Foster, M.D., C. E. Isaacs, M.D. *Recording Secretary*—C. T. Heywood, M.D. *Domestic Corresponding Secretary*—S. T. Hubbard, M.D. *Treasurer*—James O. Pond, M.D. *Librarian*—Samuel Rotton, M.D. *Trustees*—Wm. W. Blakeman, M.D., Ed. L. Beadle, M.D., Benj. Ogden, M.D. *Assistant Secretary*—F. U. Johnson, M.D. *Resident Fellows*—B. F. Barker,

The work concludes with an explanation of the circumstances under which Dr. Morton has recently commenced a suit against the United States Government for the infringement of his patent, in the person of the Surgeon of the Chelsea Hospital, Boston. This suit was brought by advice of President Pierce, with a view to test the patent, and thus force the Government to purchase it, as was originally proposed.

We have thus presented briefly the facts brought forward in this volume, relating to the discovery of anæsthesia by sulphuric ether, and its promulgation to the world. We did not enter upon this review as controversialists, and we rise from it with the simple conviction that if Dr. Rice has given us a faithful and unimpeachable narrative, his work is not inaptly termed the TRIALS OF A PUBLIC BENEFACTOR.

BIBLIOGRAPHICAL NOTICES.

ART. X.—*The Transactions of the American Medical Association.* Vol. xi. Philadelphia, 1858, pp. 1027.

THE *Transactions* have this year made their appearance somewhat tardily, but this is due evidently to the great size of the volume, and the difficulty that must attend the collection and publication of papers by authors so widely scattered. Indeed this repletion of papers and reports is beginning to be a serious matter, and demands the discriminating hand of editorial censorship. While the utmost liberality should be exercised towards contributors, the Committee on Publication should not feel obliged to insert every paper which is placed in their hands. This annual volume should contain only the most valuable and elaborate productions, while the papers which are of less permanent value should find publicity through the medium of the periodical press. As a whole, however, we regard this volume as one of the most valuable in the series of Transactions. We have not space to notice the individual papers at this time, but shall again recur to them.

M.D., Gurdon Buck, M.D., H. D. Bulkley, M.D., F. J. Bumpstead, M.D., Thomas Cock, M.D., Thomas F. Cock, M.D., J. J. Crane, M.D., George T. Elliot, M.D., T. C. Finnell, M.D., J. W. Francis, M.D., J. P. Garrish, M.D., C. R. Gilman, M.D., J. H. Griscom, M.D., T. M. Halsted, M.D., E. Harris, M.D., J. H. Hinton, M.D., E. Lee Jones, M.D., B. W. McCready, M.D., W. Parker, M.D., G. A. Sabine, M.D., L. A. Sayre, M.D., J. M. Sims, M.D., C. D. Smith, M.D., J. M. Smith, M.D., Mark Stephenson, M.D., I. E. Taylor, M.D., T. G. Thomas, M.D., W. H. Van Buren, M.D., Isaac Wood, M.D., J. R. Wood, M.D., James Anderson, M.D., E. Acosta, M.D., E. H. Davis, M.D., A. K. Gardner, M.D., Edward Delafield, M.D., Joel Foster, M.D., J. C. Beales, M.D., R. W. Barry, M.D., H. W. Brown, M.D., J. C. Forrester, M.D., H. S. Downs, M.D., F. S. Edwards, M.D., F. Elliot, M.D., R. Pennell, M.D., T. W. Richards, M.D., A. Underhill, M.D., Joseph Wooster, M.D., J. W. S. Gouley, M.D., E. H. Janes, M.D., C. Henschel, M.D., A. Gescheidt, M.D., A. N. Gunn, M.D., William H. Maxwell, M.D., E. Hall, M.D., Jared Linsly, M.D., John McClelland, M.D., William Minor, M.D., Joseph Martin, M.D., J. W. Ranney, M.D., John Priestly, M.D., Alex. H. Stevens, M.D., W. C. Livingston, M.D., Stephen Smith, M.D., George Lewis, M.D., James D. Fitch, M.D., Charles A. Budd, M.D., N. C. Husted, M.D., Thos. W. Horsfield, M.D.

ART. XI.—*Elements of Pathological Anatomy.* By S. D. GROSS, M.D., Prof. of Surgery in the Jefferson Medical College of Philadelphia, etc. etc. Third edition, modified and thoroughly revised. Illustrated by three hundred and forty-two engravings on wood. Philadelphia: Blanchard & Lea, 1857.

IT was our purpose to present a complete review of this volume, but being disappointed we shall content ourselves with the simple announcement of a new edition. The third edition appears almost as a new work, so completely has it undergone revision. While much has been omitted from this edition as not properly belonging to a work on pathology, much has been added relating to recent improvements in this branch of medicine. The work is worthy of the patronage of the profession.

ART. XII.—*A Treatise on the Pathology of the Urine, including a Complete Guide to its Analysis.* By J. L. W. THUDICHUM, M.D., late Physician to the St. Pancras Royal Dispensary, etc. With 7 plates. London: John Churchill, 1858, pp. 429.

WE have here a work without preface or introduction, and realizing the remark of a shrewd critic, that every book should explain within itself the occasion of its publication.

It is divided into forty-six chapters, each being devoted to the study of some special ingredient of urine, either in health or disease. It must not be inferred from the title that it is a pathological work, or a treatise upon the various diseases characterized by variations of the normal constitution of urine. The object of the author seems to have been to prepare a work which should embrace the history, the chemical composition, the nature, and, finally, every variety of test for the normal and abnormal constituents of urine. The pathological indications of the ingredients of urine are noticed, but without comment. The volume is well illustrated.

To the student of organic chemistry and microscopy this work will prove most valuable, while the practitioner who is expert in chemical manipulations will derive from it whatever aid he may seek. We commend it as the most complete work on the urine extant.

ART. XIII.—*Outlines of a Course of Lectures on the Principles and Practice of Surgery, delivered by* E. GEDDINGS, M.D., Prof. of Surgery in the Medical College of the State of South Carolina. Prepared by T. S. WARING, M.D., and SAMUEL LOGAN, M.D., from Notes taken during the Course. Published with the consent of, and revised by Professor Geddings. Charleston, 1858, pp. 560.

SIMULTANEOUSLY with the appearance of this work it was announced that Prof. Geddings had retired from the Charleston school, and from the practical duties of his profession. This volume must therefore be

considered his final contribution to that department of medical science which he has so assiduously cultivated, and in which he has gained eminence.

In looking over the volume we must confess to a feeling of disappointment, which is greatly heightened when we recall the valuable papers which the author has heretofore contributed to our surgical literature. We have in this large, and well printed octavo, a course of lectures on the theory and practice of surgery, differing in nothing from our ordinary text-books on that subject, except, perhaps in the absence of illustrations, and the almost entire freedom from any original views in regard to the theory and practice of surgery. We fear Prof. G. yielded too readily to the solicitations of his ambitious editors, and did not consult his better judgment.

What the profession requires at his hand is a work embracing the results of his experience, which has been great and varied. If he would add to the sum of our knowledge, let him place on record the results of his treatment of the various surgical diseases. In this way alone can he answer the just expectations of his brethren.

ART. XIV.—*The Pathology and Treatment of Stricture of the Urethra, and Urinary Fistulæ.* By HENRY THOMPSON, F.R.C.S., M.B., London, Assistant Surgeon to University College Hospital, etc., second edition, much enlarged and revised. London: John Churchill, New Burlington street, 1858, pp. 426.

THE first edition of this work appeared as the Jacksonian Prize Essay for the year 1852, the prize being awarded by the Council of the Royal College of Surgeons of England. According to the conditions of this award, the author had no power to amend, or enlarge the original copy, but was obliged to issue it as at first presented. Notwithstanding this disadvantage, the first edition was very favorably received. The present edition has undergone a careful revision, several of the chapters having been partially rewritten and greatly extended. It may now be regarded as the most complete treatise on stricture of the urethra in our language.

ART. XV.—*A Treatise on Diseases of the Air-Passages, etc., etc.* By HORACE GREEN, M.D., LL.D. Fourth edition, revised and enlarged, with an appendix. New York: Wiley & Halstead, 1858, pp. 348.

THE appendix to the fourth edition of this work constitutes its principal improvement, and is an interesting feature, as it contains an epitome of the literature of topical medication of the air-passages.

ART. XVI.—*The Science and Art of Surgery, being a treatise on Surgical Injuries, Diseases, and Operations.* By JOHN ERICHSEN, Prof. of Surgery and Clinical Surgery in University College, etc. An improved Ame-

rican edition, from the second, enlarged and carefully revised London edition. Illustrated by four hundred and seventeen engravings on wood. Philadelphia: Blanchard & Lea, 1859, pp. 996.

THE treatise of Mr. Erichsen has deservedly been one of the most popular surgical works issued from the American press. It is at once more comprehensive in design, and more accurate in detail than any other work of the kind. The second edition is enlarged and improved, and is a mirror of the surgical science and art of our times.

ART. XVII.—*A System of Human Anatomy, general and special.* By ERASMUS WILSON, F.R.S. A new and improved American, from an enlarged London edition. Edited by WILLIAM H. GORBRECHT, M.D., with three hundred and ninety-seven illustrations on wood. Philadelphia: Blanchard & Lea, 1858, pp. 616.

THE present edition of this popular work on anatomy, has not only been revised and corrected, but those parts relating to Histological Anatomy, have been re-written. It is presented to the profession by the author, as a complete work on this subject.

ART. XVIII.—*Contributions to Operative Surgery, and Surgical Pathology.* By J. M. CARNOCHAN, Prof. of Surgery in the New York Medical College, etc., with illustrations drawn from nature. Philadelphia: Lindsay & Blakiston, 1858.

THIS is the second number of Prof. Carnochan's work, and fully sustains the character which we had anticipated from the appearance of the first part. Its contents are: 1. *Case of Exsection of the entire ulna;* 2. *Remarks on Neuralgia of the face, with a case;* 3. *Exsection of the trunk of the second branch of the fifth pair of nerves, beyond the ganglion of Meckel, for severe neuralgia of the face, with three cases.*

ART. XIX.—*Lectures on the Principles and Practice of Physic, delivered at King's College, London.* By THOMAS WATSON, M.D. A new American, from the last revised and enlarged English edition. With additions by Dr. FRANCIS CONDIE, M.D., with one hundred and eighty-five illustrations on wood. Philadelphia: Blanchard & Lea, 1858, pp. 1224.

THE great work of Dr. Watson comes to us in such a modified and improved form that we should scarcely have recognized the original. In preparing the present edition, the author has added a large amount of original matter on subjects to which there have been recently important contributions. The opinions of so eminent an authority as Dr. Watson upon questions of theory and practice, which have recently arisen, will be eagerly sought after. One of the most striking improvements in the present volume, is the liberal insertion of wood-cuts to illustrate

morbid anatomy. This work is now truly a cyclopedia of practical medicine.

An Inaugural Address, delivered before the New York Academy of Medicine, Feb. 3, 1858. By J. P. BATCHELDER, M.D.—This address, delivered on the accession of the author to the presidency of the Academy of Medicine, is a most sensible and timely production. The topics discussed are the mutual obligations, relations and duties of the Academy and the profession, and the duty of the Academy to itself. The duties of the Academy are, the promotion of the scientific, the moral, and the educational interests of the profession ; these duties it is nobly discharging, and the profession owe the Academy in turn that devotion to individual duties which alone can give it real prosperity and success ; and, finally, the Academy owes it to itself to obtain a permanent home. This fact Dr. B. urges with great force, and advises the immediate consideration of plans for building. No man has labored more zealously to advance the Academy of Medicine than its late President, and from none has it received more wise and well-considered suggestions.

The Mott Surgical and Pathological Museum.—The illustration of morbid anatomy by a well regulated and complete museum, is a necessity of which every educated physician feels more or less constantly the need. And when we consider what fruits such collections have already yielded abroad, and what immense and untiring labor is necessary to their preparation, we can but regard the man who resolutely sets to work, and through a long life devotes the leisure hours of a toilsome and harassing profession to the drudgery of preparing morbid specimens for a museum, as a great benefactor. For fifty years of active and most exacting professional labors, Dr. Mott has diligently pursued the one great object of leaving to posterity the results of his experience in the noble museum which now adorns the halls of the University Medical College. He states in the preface that "it comprises over a thousand specimens, and among them there is very little redundancy. Almost every one was made by my own hands ; some of them as long ago as when I was a student in London, in 1807." We quote this latter statement with infinite pleasure, as it shows by what toil and perseverance Dr. Mott has achieved a reputation to which many aspire but few will attain. This fact is an invaluable legacy to the medical student who heeds it.

The catalogue, though intended as a guide to students attending the University, is of value to the general practitioner, as the history of many specimens are given with much detail. It contains, indeed, a careful record of the most important operations of the author, with practical remarks upon points of interest.

We are not altogether pleased with the preparation of the catalogue, but being aware of the difficulties and perplexities attending the arrangement of such collections, we shall not venture to be critical.

Silver Sutures in Surgery. The Anniversary Discourse before the

New York Academy of Medicine, Nov. 18, 1857. By J. Marion Sims, M.D., Surgeon to the Woman's Hospital.—In this discourse Dr. Sims has departed from the custom established by his predecessors of giving a historical, ethical, or speculative lecture, and devoted the anniversary address to the elucidation of a practical subject. We commend his good taste, and hope his example may be followed. We would go farther, and suggest, that instead of a single popular discourse, the Orator be chosen with reference to the discussion of some practical subject, and be allowed one or more lectures as he may have need. Some of the most valuable monographs have thus been produced before foreign societies.

Dr. Sims enters upon the subject-matter of his discourse by a brief description of his method of treating vesico-vaginal fistula. In this connection, he takes occasion to refer to the claims of Dr. Bozeman, the inventor of the "Button Suture," and censures his conduct in no measured terms. To test the value of this modification of the clamp suture, Dr. Sims operated seven times, and reports six successive failures. He admits, however, that the cause of failure was due to the fact, that he passed the wires too far from the abraded edge, while, in the last case, he attributes his success entirely to the silver wire, and not at all to the "button."

These experiments seem to have been productive of good results, for Dr. Sims was led thereby to test the advantages of silver wire in a simple interrupted suture without either clamps, shot or button, and the result proved that used in this way, being simply twisted firmly, it answered perfectly. Dr. Sims now employs the silver wire entirely in this manner, and with uniform success.

Of the great advantage of silver wire over silk in sutures, in the general practice of surgery, Dr. Sims is deeply impressed, and he urges its adoption with all the zeal of an enthusiast. He has employed it with perfect success in plastic operations, hare-lip, scalp wounds, removal of the breast, amputations, ovariotomy, wounds of the intestines, etc. He claims that "Silver, as a suture, is the great surgical achievement of the nineteenth century," and in the following language bespeaks its future triumphs :

"I shall yet live to see the day, when the whole profession of the civilized world will accord to this simple discovery the high position of being the most important contribution as yet made to the surgery of the present century. The only thing at all comparable to it, is etherization ; and in practical results of permanent benefit, it is absolutely contemptible, when compared with those from the universal use of silver sutures in the broad domain of general surgery."

Dr. Sims concludes his discourse with an interesting sketch of the experiments by which he was led to the cure of vesico-vaginal fistula.

Ophthalmic Hospital Reports and Journal of the Royal London Ophthalmic Hospital. Edited by J. F. Streatfield. London.—We have received several numbers of this periodical, which is issued quarterly by the Royal Ophthalmic Hospital, London. It is a very ably conducted journal, and supplies to the ophthalmic surgeon a much-

needed medium for obtaining the latest improvements in this department of surgery. It is divided into—1. *Facts and Observations.* 2. *Original Communications.* 3. *Quarterly Reports.* The July number contains the following original papers: *Operations for Cataract among the Natives of India*, By WM. MARTIN; *Protrusion of the Eye-ball*, by MR. POLAND; *On the Growth of the Crystalline Lens and formation of Capsular Opacities*, by MR. HULKE; *Different forms of Inflammation of the Eye consequent on inherited Syphilis*, by MR. JONATHAN HUTCHINSON. The report of the operations on the iris, in the Ophthalmic Hospital, is highly interesting.

On Gastro-Colic Fistula. A Collection of Cases and Observations on its Pathology, Diagnosis, etc., by CHARLES MURCHISON, M.D., M.R.C.P. Assist. Physician to King's College Hospital, London, etc.—After referring to the various kinds of fistula of the digestive canal, Dr. Murchison gives the histories of 23 cases of fistula of the stomach and colon. From this summary it appears that the majority of fistulæ are the result of cancer. The symptoms of this disease followed by vomiting of feces, renders the diagnosis easy. The prognosis is fatal, unless the cause be other than cancer, as perforating ulcer.

Physiology, Pathology, and Therapeutics of Muscular Exercise, by W. H. BYFORD, M.D. Chicago: 1858.—As a proper kind and amount of exercise is essential to the health and vigor of our bodies, the converse is true, that the want of exercise gives rise to diseased conditions. Dr. Byford, as a rational therapeutist, has drawn from these facts many practical deductions.

Introductory Discourse to the several Courses of Clinical Instruction at Bellevue Hospital, New York, delivered on the 18th of October, 1858. By JOHN W. FRANCIS, M.D., LL.D., President of the Medical Board. New York, 1858. This discourse is mainly historical. In giving a sketch of the rise and progress of clinical teaching and anatomical and pathological investigations, Dr. Francis relates many interesting incidents in the life of distinguished members of our profession. With many of the prominent physicians and surgeons of Europe in the early part of this century, Dr. Francis enjoyed an acquaintance, and hence his reminiscences have all the freshness of an immediate interview with the persons introduced. With the early history of the medical profession of our city, Dr. Francis has the most intimate knowledge. While no living physician has an equal familiarity with the lives of our early physicians, no one has in an equal degree the happy facility of portraying their characters. It is a source of gratification to us that Dr. Francis seizes these opportunities to place on record such fragments of our medical history as he alone is in possession of. The address is very neatly printed by the students of the several schools, and is prefaced by a beautiful and accurate steel engraving of the distinguished author.

A new Method of treating Exstrophy of the Bladder, by DANIEL AYRES, M.D., LL.D. Brooklyn, N. Y., 1859. This pamphlet is a reprint from the *Med. Gaz.*, and details the successful treatment of a case of exstrophy of the bladder.

PART THIRD.

MEDICAL RETROSPECT.

Report on the Progress of Obstetrical Science and Diseases of Women; prepared for the NEW YORK JOURNAL OF MEDICINE. By E. NOEGGERATH, M.D., Physician to the Female Department of the (Canal street) German Dispensary of the City of New York.

(*Continued from p.* 141, *Vol. VI.*)

III.—PATHOLOGY OF NON-PREGNANT WOMEN.

4. *Prof. Blair on vicarious menstruation* (*Oglethorpe Med. and Surgical Journal*, April).—The subject was a young lady of fifteen years, who never menstruated, but at each period had all the evidences of approaching menstruation, which would suddenly disappear, and she would be attacked with acute inflammation in the right eye. By appropriate treatment the patient began to menstruate freely, and was entirely restored.

5. *Prof. James P. White of Buffalo. Report of a case of inversion of the uterus successfully reduced after six months, with remarks on reduction in chronic inversion.*—The article opens with the history of a case where Dr. White reduced the inverted uterus of a woman who had been delivered eight days previously. The reduction was perfected at one trial by the method of dimpling the most prominent part of the fundus. The patient died three days afterwards. The post-mortem examination revealed no cause of death, unless the anæmic condition of the tissues may be considered as such. A second case under the author's care was reduced soon after the accident. A third case was not visited until the fifteenth day, no effort at reduction being attempted.

On the 12th of March, 1858, Dr. White was requested and saw a case of inversion of more than five months' standing, in consultation with Drs. Robinson, Reynals, Batten, and Dimick. On examination, the fundus was found just within the os externum, the body and neck of the organ occupied the vagina; the inversion was recognized as complete, and the organ scarcely larger than when in its natural position six months after delivery. The patient being placed horizontally across the bed and chloroformed, Dr. White introduced his right hand into the vagina, and firmly grasped the entire body and neck of the uterus. At the same time a large rectum bougie was carried up and also received into its palm, and held firmly in contact with the fundus of the uterus. Continuous gentle pressure was now made upon the external extremity of the bougie with the left hand, whilst the right compressed the uterine tumor. In this way the force was directed in the axis of the pelvic cavity, putting the vagina completely upon the stretch. After persevering in this effort as long as the strength of the operator

could afford it, the tumor at length began to shorten at its neck, and the mouth of the uterus to push upon the upper surface of the hand. No depression of the fundus was at any time perceptible. At last the fundus passed out of the hand, and was easily pushed by the bougie through the neck of the organ up to its proper position. The full reduction of the uterus was afterwards demonstrated by the uterine sound and the speculum. The bougie was retained in the uterus till the next day by the attending physicians, and ergot given to promote tonic contraction of the uterus. The patient afterwards recovered entirely.

In concluding this highly interesting paper, Dr. White remarks that the reduction by dimpling the fundus ought to be restricted to recent cases, as in those of old standing the uterine cavity left is too small, and the organ too firm, for any depression to be made upon the walls of the fundus.—(*The American Journal for Med. Science*, July, 1858.)

6. *Dr. Warren on occlusion of the uterus—Rupture of the left Fallopian tube* (*from the records of the Boston Society for Medical Improvement. The Boston Medical and Surgical Journal*, July, 1858).—The patient had a very severe confinement about four years ago, and has never menstruated since. On examination, a large prominent tumor was found in the abdomen, and not the slightest trace of the os uteri in the vagina. Soon after the vaginal examination was over, a bloody or tarry discharge commenced to flow from the genitals, being accompanied by forcing uterine pains, and with a great diminution of the abdominal swelling, which, however, was confined only to the right lobe of the abdominal tumor, while the left portion of the swelling remained unchanged. The following day suddenly she was seized with a violent pain in the abdomen, and she died in about two days.

The post-mortem examination showed that the right lobe of the tumor had been formed by the uterus, which had emptied itself through the vagina. The left lobe consisted of the left Fallopian tube, enormously distended into a very delicate sac by the retained menstrual fluid. There was no communication between the Fallopian tube and the uterus, and the tube had ruptured and discharged its contents into the abdominal cavity, causing death.

7. *Dr. A. Mayer, Jr., on uterine and vaginal prolapsus, its treatment by Dr. Zwank's instrument, and the conditions which prevent its application* (*Transactions of the Berlin Obstetrical Society*, April, 1858. *Monatsschrift für Geburtsk.* July, 1858).—Of 300 cases of prolapsus which came under Dr. Mayer's observation since 1853, there were:

1. Of prolapsus of the vagina unconnected with prolapsus uteri, 7 cases, viz.: *a.* of prolapsus pariet. anter. vagina, 5 cases; *b.* of prolapsus par. poster., 2 cases.

2. Prolapsus vaginal with descensus uteri, 84 cases: *a.* prolapsus par. anter. vagin. et desc. uteri, 54; *b.* prolapsus par. poster. vagin. et desc. uteri, 5; *c.* prolapsus par. anter. et poster. vagin. et descens. uteri, 25.

3. Prolapsus par. anter. vaginæ, with partial prolapsus uteri, 21.

4. *a.* Prolapsus par. anter. et post. vagin. et uteri, incomplete, 151;

b. prolapsus par. anter. et post. vagin. et uteri, complete, 27. The great number of these cases is explained by the fact, that women suffering from these complaints very often do not ask for medical advice before 20 or 40 years have elapsed.

5. Prolapsus uteri (penniformis) 10.

The prolapsus was complicated with: 1. retroflexions 62 cases; 2. retroversions 39 times; 3. anteflexions 6 times; 4. hypertrophies 117, among which 59 combined with flexions.

Other complications were cystocele, rectocele, ulcerations, metritis, excrescences of the urethral orifice, prolapsus ani, oöphoritules, abdominal tumors, pregnancy. Dr. Zwank's hysterophor was applied in 203 cases. Fourteen of these women discontinued treatment because the instruments did not agree with them, producing ulcerations and pain; 2 patients removed the instrument on their own account, and sent it back without giving it a further trial; 2 preferred an abdominal supporter; and 7 cases only offered invincible difficulties to the application of the instrument. One of these suffered from a far advanced hydrops ascites. The second patient was so deformed and stiff in her limbs that it was impossible for her to move and introduce the instrument. A third one could not have an instrument for the same reason; as her arms were paralyzed. With two patients the vagina was so irritable that every instrument created violent pains after it had been borne for a short time. In two very old patients the vagina was so short and rigid that even the smallest size could not be entirely shut when introduced.

Before an instrument was applied, such complications as could be cured (metritis, hyperæmia, hyperæsthesia, ulcerations) were first removed. The greatest difficulty was experienced in the treatment of those occasional ulcerations which are located in the walls of the vagina. The application of caustics, nitrate of silver, etc., was always followed by an aggravation of the symptoms, while repeated scarifications, and the use of acid pyrolignius succeeded better, though after a considerable length of time.

Simple hypertrophies of the womb, as a general rule, did not interfere with the successful application of Dr. Zwank's instrument, while in those cases where hypertrophy and flexion of the womb were combined, the greatest difficulties presented themselves to the use of the hysterophor, such as violent back-ache, bearing down, increased painfulness of the womb, ulcerations of the labia and vagina. In these instances the womb has to be first replaced by the probe, and retained in its position for some time by a plug introduced into the vagina, after which an instrument may be tried again.

The leading point in searching for the right size of an instrument, is the space and direction of the arcus pubis, an average shape of which may be acquired by the introduction of the second or third fingers, thus establishing the distances of the two pubic bones. Very often a comparatively small instrument is required for retaining very extensive prolapsus. This remark applies also to cases of prolapsus combined with rupture of the perineum, which are very often benefited by a small in-

strument of Zwank, while all the other kinds failed to retain the womb in its position. Still the question, if the instrument is of a fitting size, will be lastly decided by the sensations of the patient after she has worn it for several days, after the very first disagreeable impressions of a foreign body in the vagina are overcome. If the instrument chosen is of the right size, the patient, after some days, will be scarcely aware of its presence.

Sometimes it happens that a portion of the vagina works its way beneath the anterior edge of the instrument, and appears outside the vagina. To remedy this, an instrument must be chosen, the greatest breadth of which is situated in the centre, *i. e.* where the two lateral wings are joined. By the invention of Dr. Zwank, the bloody operation, episeorrhaphy, elytrorrhaphy, the pincement du vagin, etc., have been supplanted, because by Zwank's hysterophor *almost all* cases of prolapsus are retained, of whatever shape and size they may be, provided the right instrument has been chosen. The conditions which forbid the application of Dr. Zwank's hysterophor are : carcinoma uteri; hypertrophy of the neck of the womb; very narrow, rigid vaginal walls, as often met with in very old women; large pelvic tumors; far advanced hydrops; in some very rare cases of distorted pelvis.

7. *Dr. Becquerel on neuralgia of the uterus* (*Gaz. des Hôp.*, 47, 1858).—In opposition to many physicians who consider uterine neuralgia rather as a symptom connected with pathological conditions of this organ, the author believes it to be an idiopathical disease not unfrequently met with. Its manifestations are intense, violent, lancinating, and intermittent pains, the seat of which is, in most cases, the uterus itself, from whence they are spreading, at times, to the lumbar region, hypogastrium, perineum, and fundament. The pain is generally increased by the touch. Continued and quick walking, as well as cohabitation, are apt to increase the suffering. Very often the entire nervous system shows an increased sensibility owing to the diseased state of the womb. The author distinguishes a symptomatical, a utero-lumbar neuralgia, and a neurosis of the uterus.

The course of the disease is always of a chronic character, and mostly intermittent; the duration of symptomatic neuralgia always depends upon the primitive affection. The diagnosis must be derived from digital and from specular examination; in this way material changes may be easily recognized; the neurosis must be diagnosticated by way of exclusion, its presence may be stated from the absence of organic disease and painful irradiations, the presence of the latter indicating an utero-lumbar neurosis. In regard to prognosis, it may be said that the disease is very difficult to remove in exhausted, anæmic subjects.

The treatment of symptomatic neuralgia has to be directed against the primitive disease; besides this, the neuralgia itself must be treated with the different narcotics. Of great value are the use of full baths, and in cases with a manifest intermittent character, the sulphate of quinine can be recommended. The method of Cruveilhier, who applies a mixture of linseed meal to the cervix uteri, is not praised by the author. He tries to apply the remedies to the cervical canal, or to the

cavity of the womb itself, by introducing small conical rollers, formed of castor oil, gum arabic, and tannin, into the womb; after ten or twelve hours they are melted down, thus leaving the tannin to act upon the mucous membrane. This has to be repeated every third or fourth day. The author has applied, in the same way, opium, belladonna, etc., with great benefit, thus lulling, in a short time, the most violent pains. Other important remedies care old-water cures, the baths of St. Sauver, Ems, and sea bathing.

8. *Dr. G. T. Scarburgh, of Baltimore, on a peculiar case of retention of the menstrua from occlusion of the os uteri* (*The Virginia Medical Journal*, Vol. XI., No. III., September, 1858).—Mrs. H. E., a negro woman, suffered from occlusion of the os since her last unusually painful labor. On examination, a large, pear-shaped tumor was found extending from the symphysis as far up as above the umbilicus. Through the speculum the os appeared to be entirely closed by a false membrane. With a straight bistoury an attempt was made to cut through the occluding membrane, but so dense and fibrous was it, that the effort was abandoned. Recourse was next had to a sharp trocar. This, too, after many unsuccessful efforts, was also abandoned. From the external toughness of the membrane, it was deemed useless to attempt to cut through it, and no further effort was made. The patient died soon afterwards from exhaustion.

Autopsy.—The abdominal tumor was soft and fluctuating in its lower two-thirds. The abdominal walls were closely adherent to the tumor, requiring nice dissection to separate them; so were the intestines. The neck of the uterus was with great difficulty cut through, and on entering the cavity about a quart of muco-purulent fluid escaped, and lying in it was an oblong ball of coarse matted hair, about four inches in length, and two and a half inches in diameter. Attached to the walls of the cavity were found several smaller pieces of hair. The whole fundus uteri seemed to have been converted into a large cyst, which, upon being opened, was found to contain steatomatous matter, with numerous bands and some few bloodvessels traversing it in several directions.

Dr. S. is of opinion that the hair was used as a tampon to stop a post-partum hemorrhage.

(*To be continued.*)

CORRESPONDENCE.

A case of regular menstruation during pregnancy. By Frederic D. Lente, M.D.—Mrs. M., aged 20, emigrated from Ireland in 1855. Was out of health, and had suppression of the menses for several months after her arrival here. Was under my treatment, and finally became "regular," and her health thoroughly restored. Her menstrual function continued to be well performed, and during the summer of 1856 she was married to a private soldier stationed at West Point. She continued "regular" after her marriage, and retained her place as "chamber-maid" in an officer's family. In October, 1857, she missed her turns

for the first time since her marriage, and on December 7th following, had a full grown but delicate child, in the standing posture, while in one of her employer's rooms, where she had been performing her ordinary work. She had enlarged but very moderately, and supposed she was only a couple of months pregnant. Her lochial discharge continued abundant for a month, then ceased; "saw nothing" for another month, then had a menstrual flow, which continued two weeks. After a month's interval, was "regular" again, and has not had her courses since, the child being now over a year old, and perfectly well. She assures me, as does her aunt also, that her "turns" came on as regular at the end of every four weeks as they did before marriage, and continued each time the usual number of days.

Occurrences of this kind, though recorded now and then, are sufficiently rare to render them worthy of notice.

Cold Spring, February, 1859.

On the treatment of varicocele by an improved method. By Lewis A. Sayre, M.D.—In the last number of this Journal is a case reported by Dr. Isaacs, of Brooklyn, of "*Variocele treated by exsection of a portion of the scrotum,*" which was followed by severe hemorrhage, sloughing, and very grave constitutional disturbance, and the doctor very properly asks, at the termination of the report, "*Can we not devise a better operation?*"

I herewith submit my instrument, devised for this very operation in 1846, a full description of which was published at the time in one of the medical journals of the city, I think the *Annalist*, edited by Dr. Roberts, and since republished in the *New York Medical Press*, December 18th, 1858.

The instrument, which was made by Mr. Tieman, consists of two pieces of steel, about four inches in length and a quarter in width, segments of a circle of about four inch radius, and retained together, in the form of a clamp, by means of small rods or pins, permanently secured at each end of one of the bars, and which pierce the opposite bar through corresponding openings. The rods are cut with a thread, and thus made into screws, and a small movable button working upon them, will cause the blades or bars to approximate to any required distance.

The bars, on their inner surface, are roughened on their convex border to prevent slipping, and from this roughened edge to the concave border the blades are levelled outward and rounded off, so as to prevent too much pressure on the scrotum when it swells during the inflammation following the operation.

In performing the operation the blades are separated, and the scrotum is drawn through to the required extent, the testicles being carefully carried before the concave surface of the clamp. Care should be taken to draw down through the instrument as much of one side of the scrotum as the other, so as to have the new cicatrix or raphé in the centre. The blades are then screwed together sufficiently tight to arrest hemorrhage, without entirely cutting off the circulation. Silver pins are then thrust through the scrotum along the outer or convex

border of the instrument, at distances of every half inch, in order to retain the septum from receding, and the entire scrotum below the line of pins is then removed by a single stroke of the knife. The hare-lip suture is then thrown around each pin, and intermediate sutures are applied if deemed necessary, and the clamp thus retained in position will keep the wound in exact apposition, and in the great majority of cases union by the first intention will take place in about five days. No ligatures are required whatever, as the screws can be made to control the hemorrhage entirely.

On the following day there will be some inflammation and swelling, when the screws can be turned back a few threads, and the blades pressed apart sufficiently to allow healthy circulation and prevent sloughing, without being sufficiently free to permit hemorrhage. I have used this instrument in many cases with the happiest results.

795 Broadway.

Rupture of the uterus. By Wm. G. Meacham, M.D., Warsaw, Wyoming co., N. Y.—Upon Sunday the 23d inst., about 4 P.M., my brother, Dr. J. G. Meacham, of Warsaw, was summoned to the bedside of Mrs. Ann Jane Service of the same place, a primipara and 26 years of age. The labor progressed regularly and with no untoward symptom to the birth of the child and the delivery of the placenta immediately thereafter, at eight o'clock. But directly upon the withdrawal of the afterbirth, a severe rigor was developed which persisted for a half hour in spite of diffusive stimulants, such as brandy, carbonate of ammonia, etc., and external excitants. A dose of morphine was also administered. Soon a flagging pulse, cold extremities, and an exsanguinous and pinched countenance plainly betokened an alarming prostration, for which the loss of blood through the external genitals, by no means considerable, could but indifferently account. Incited by these symptoms, Dr. M. made diligent investigation relative to the existence of internal uterine hemorrhage, but the abdominal and vaginal touch disclosed that firmly contracted knob in the hypogastric region which removes all anxiety about the presence of that fearful hemorrhagic complication of the puerperal state. The collapse, however, continued to increase in severity, as was evidenced by failing circulation, decreasing respiratory energy and force, and diminishing superficial temperature. Diffusive stimulants were now given in larger doses and at less distant intervals, and such other internal and external restoratives were had recourse to as are ordinarily employed in the conduct of similar cases—but all to no avail. Reaction could not be effected. Dr. M. now perceiving the danger of the patient communicated his disheartening prognosis to the friends of the patient, and expressed a wish to meet some one in council. Dr. Baker of this village was thereupon called, but he could of course predict no more favorable issue to the case. The unfortunate woman lingered on until 11 o'clock, when she expired.

The following (Monday) morning my brother called at my office, acquainted me with the particulars of the case and desired me to attend the post-mortem, which he purposed instituting forthwith. I need not say, that the history of the labor which he imparted to me, and which I have just recorded, readily suggested a diagnosis of uterine rupture.

I accepted the invitation, and together with Dr. Baker, witnessed the autopsy. Upon opening the peritoneal cavity an unusual quantity of liquid was seen to occupy it, and upon ante-flexing the uterus there was observed upon the right posterior aspect of its body, just above the cervix, a portion of the peritoneal envelope, two inches square or thereabout, which differed considerably in appearance from the surrounding parts, being mottled red and purple, while they presented a pale, greyish tint. An examination of this spot disclosed a *ramollissement* of the peritoneal covering almost amounting to diffluence, for very slight friction sufficed to bare the subjacent muscular tissue. The serous membrane could also be readily dissected by the finger or the handle of the scalpel from the uterine muscular fibre for a considerable circumference around the softened central disc. At this place was discovered an opening through the uterine wall into the cavity within.

The pathological condition of that portion of the peritoneal covering of the uterus in which the rupture was observed, a condition which undoubtedly predisposed to the rupture, was palpably the result of antecedent inflammation. The patient had suffered severely for several months with pain in her back and sides, but she had neglected to apply for medical assistance. Not only was the peritoneal envelope thus softened at this spot, but the muscular tissue itself bore evidence of having sustained more or less injury from inflammation, and it is certainly presumable that an extension of diseased action may have taken place from one to the other of these adjacent tissues of the uterine wall.

I am not aware that there was any pelvic deformity or any abnormal fœtal development such as to predispose to this fearful accident, and my brother assures me that he administered no expulsive medicines with the design of expediting delivery. The rupture evidently occurred at the very close of the puerperal effort, for as the fœtus was extruded, the collapse began, and not a single after-pain was experienced. Subsequently to the severe rigor which initiated the collapse, she suffered intensely with pain, which was referred to the epigastric and hypochondriac regions, pain manifestly seated in the peritoneum and occasioned by the presence of air or the uterine fluids, or both, within the abdominal cavity. It is very questionable, if it be not incredible, that, in a condition of such vital depression, such fearful collapse, an acute inflammation could have supervened upon the rupture and been indicated by this agonizing pain. As I gather from my brother's statements, the prostration so far exceeded that which attends upon even the most violent traumatic peritonitis that a shock to the nervous system may justly be deemed the proximate cause of the fatal issue in this case.

From imperfect examination I cannot definitely say what was the source of the unusual quantity of liquid found within the peritoneal cav-

ity. It may have been amniotic liquor, but, in order to the entrance of any considerable amount of this, we must suppose the uterine rupture to have occurred previously to, or contemporaneously with the rupture of the membranes, and this supposition the history of the accouchment does not justify. We are rather authorized in considering this liquid as a serous effusion from the peritoneum and a consequence of that chronic inflammation of the existence of which I think we have abundant evidence. Other parts of the supra-vaginal zone of the uterus than that in which the rent was discovered bore traces of previous inflammatory action.

To conclude. From the history and autopsy, I deduce the following conclusions.

1st. That the rupture occurred synchronously with the passage either of the head or of the shoulder of the fœtus through the superior strait.

2d. That a ramollissement of a part of the supra-vaginal zone of the uterus, consequent upon chronic inflammation, was the predisposing, and the uterine contractions were the exciting cause of the rupture.

3d. That the rupture was unavoidable; and,

4th. That it was irremediable.

Asarum canadense as a remedy for dropsy depending upon albuminuria. By J. R. Black, M.D., Linnville, Ohio.—Three plans of treatment for the removal of the effusion connected with Bright's disease have each a large class of advocates. No one plan can be said to have enjoyed a much higher degree of favor than another. Recently, however, the diaphoretic has obtained much vogue, and appears to be the favorite in the metropolitan hospitals. But it is open to a very important objection. The great disorder of the assimilative function, almost an invariable concomitant of this disease, is unequivocally enhanced by the medicines necessary to produce diaphoresis. Antimonials, opium, ipecac., spiritus mindereri, etc., if used even for a brief period, must add in no inconsiderable degree to the anæmic condition of the system. The second mode of treatment, consisting in the free use of hydragogue cathartics, is liable, in a more special manner, to the same objection. The third mode of treatment, that of acting upon the kidney by diuretics, has perhaps more to commend it, and is more generally resorted to than any other. But every practitioner is aware of the eccentricities and uncertainties that attend the administration of this class of agents. Oftentimes the whole of a long list of diuretics has to be resorted to ere the desired effect can be obtained. Even then they will now and then fail after engendering more or less nausea, which some of them are peculiarly apt to occasion: or in depending upon those whose therapeutical effects are more consonant with the cachectic state of the system, we will find our armaments too feeble to successfully cope with this formidable disorder. Under all these circumstances, it is extremely desirable that an agent be discovered capable of producing a more specific effect upon the kidney, and at the same time not interfere with the process of digestion and

assimilation. Such a one I think I have discovered, through some remarks of the inhabitants of this section. It is, I am aware, a very common occurrence for the physician to hear from the credulous multitude long tales of the wonder-working power of some root in this or that disorder. It is perfectly true that in the great majority of instances these recitals are utterly unworthy of attention; but we ought, nevertheless, to bear in mind, that where there is chaff we should suspect some golden grains. Having frequently heard, in this way, of the great virtues of the Canada snakeroot in dropsy, my attention was not specially directed to it until one of my patients, who had for some three months suffered in an extreme degree from albuminuria and excessive effusion, asked my consent to drink some tea of this root. This patient was a middle-aged woman, who had contracted intermittent fever in Indiana, and did not get rid of it till albuminuria made its appearance in an aggravated form, some thirteen months after the onset of the fever. The urine was scanty, too frequently voided, of deficient specific gravity, and so highly albuminous as to form a gelatinous mass, on application of usual tests. By the use of the usual agents recommended in such cases, the symptoms gradually mitigated, and in some nine weeks the effusion was so far removed that locomotion was possible; but yet the improvement was so slow, the increase of renal secretion, under the administration of the most certain and suitable diuretics, was so imperceptible, that I almost despaired of ever entirely removing it. Under these circumstances, I felt ready to adopt any feasible means that might contribute in subduing the disease. Within thirty-six hours after partaking two or three times of a decoction of the snakeroot, a great increase in the renal secretion was manifested, and under its use alone the case rapidly recovered, and she is now, and has been for some two years, performing her ordinary household duties. Once or twice, during that time, the effusion has exhibited signs of returning, which were promptly counteracted by the use of this decoction.

The happy effects of this root determined me to give it another trial in this disease (which, by the way, is quite rare in this region) at the earliest opportunity. Accordingly, on the 20th September, 1858, I was requested to see Mrs. S., aged 26, widow, mother of one child, which had died almost simultaneously with its father some three months previous. In common with her husband and child, she had been suffering from dysentery, after which intermittent fever set in. The chills continued to recur at irregular intervals despite the administration of various remedies. At the time of my visit, I found her much prostrated, and laboring under a chill. Her aspect was anæmic and dingy, with general bloating of the body. The inferior eyelids bulged with their serous contents; complained of slight pain in the head and back; sleep very much disturbed; respiration at times much oppressed, with a sense of fullness in the epigastrium; tongue pale and flabby; appetite poor; occasional nausea and vomiting; pulse rather quick; alvine discharges normal in color and consistence; micturition too frequent, scanty, specific gravity 1010, quite opalescent on application of heat or nitric acid;

catamenia suppressed. Directed 4 grain doses of sulph. cinchonæ, administered in dilute tinct. ferri, to check the chills, after which the bowels to be cleared by 30 grains pulv. jalap. comp. During the administration of the cinchona the effusion rapidly increased, rendering her almost helpless. In order to determine (and, besides, having no snakeroot at hand) what effect an ordinary prescription would have upon the disease, she was put upon sps. ethr. nitrici, bitar. potassæ, with infus. diosma, as much as can be borne without too much disturbance of the alimentary canal. Five days after its use was began, thought her urine a little more abundant, although, on inquiry and examination, I was able to detect no improvement in any other respect—at least so far as the condition of the kidney and effusion were concerned. Ordered Canada snakeroot ʒiv., aquæ bullientis Oij. Boil 30 minutes, strain, and give two tablespoonfuls every four hours. After taking four doses, her urine increased to one gallon per night, and nearly the same quantity during the day. On the third day after its use, I saw her effusion rapidly disappearing; opalescence scarcely perceptible; says her flesh is very sore, and feels quite weak; that she had to diminish the dose, as it caused her to pass blood with the urine; felt no untoward symptom from the medicine, but was alarmed at the appearance of blood. On expressing my incredulity, said she could not be mistaken, had examined it attentively, said it was dingy and red. I could not verify her statement by the examination of a specimen, as it did not reappear under the diminished dose of the decoction, which I thought it prudent to continue. Her recovery was rapid and complete, and continues up to time of writing (January 10th, 1859) in good health.

In conclusion, I may state that I do not bring this article before the profession with any other intent than that of having its virtues more thoroughly tested by some of my professional brethren, whose opportunities for the treatment of this affection are peculiarly great, and should their experience confirm or disapprove my limited observations, I trust that they will bring them before the profession with such prominence as may be commensurate with its claims.

EDITORIAL.

Death of Samuel S. Whitney.—As the profession generally are familiar with the facts in this case through the public prints, we shall abstain from any farther notice of it.

Award of Prizes in Bellevue Hospital.—A meeting of the Board of Examiners for awarding the Wood & Elliott Prizes, was held at Bellevue Hospital on Monday 28th of February. Present, Profs. Mott, Parker, Post, Barker, Childs, and Watts. Dr. Mott, *President*, Dr. Childs, *Secretary*.

For the Wood Prizes there were four competitors. First prize awarded to No. 2, Mariano C. De Socarraz, Univ. Medical College. Second prize to No. 4, George Bromley, New York Medical College.

The Elliot Prize, two specimens presented. The prize was awarded to E. A. Hervey, Univ. Medical College.

A New Work.—We take pleasure in announcing that Drs. Noeggerrath and Jacobi have in press a work which will soon appear, embracing a complete review of the literature of the diseases of women and children, for the year 1858, in the manner of their contributions to the retrospect department of this journal.

Medical Periodicals.—*The New York Medical Press* is the title of a weekly periodical journal, which began its existence in this city on the 1st of January. It is edited by Drs. Kiernan and O'Meagher with ability, and fills an important place in our periodical literature.

The Semi-Monthly News has made its appearance in Louisville, Ky.

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Beale (Lionel). The Microscope in its Application to Practical Medicine. London: John Churchill, 1858.

Thompson (Henry). The Pathology and Treatment of Stricture of the Urethra and Urinary Fistulæ. Second Edition. London: John Churchill, 1858.

Green (Horace). A Treatise on Diseases of the Air Passages, etc. Fourth Edition. New York: Wiley & Halsted, 1858.

Malgaigne (J. F.) A Treatise on Fractures. Translated from the French by John H. Packard, M.D. Philadelphia: J. B. Lippincott & Co., 1859.

Dalton (J. C.) A Treatise on Human Physiology, designed for the use of Students. Philadelphia: Blanchard & Lea, 1859.

Bakewell (R. H.) A Popular Manual of Female Diseases. London: Richard Kimpton, 1859.

Condie (Francis D.) A Practical Treatise on the Diseases of Children. Fifth Edition, revised and enlarged. Philadelphia: Blanchard & Lea, 1858.

Hunter (John). A Treatise on the Venereal Disease. With copious additions, by Dr. Philip Ricord, Surgeon to the Hôpital du Midi, Paris, etc. Translated and edited, with notes, by Freeman J. Bumstead, M.D., Lecturer on Venereal at the Coll. Phys. and Surg. N. Y. Second Edition, revised, containing a résumé of Ricord's recent Lectures on Chancre. Philadelphia: Blanchard & Lea, 1859.

Braithwaite's Retrospect of Practical Medicine and Surgery. July-Dec. 1858. London: Simpkin & Co.

Rankin's Abstract of the Medical Sciences. July-December, 1858. London: John Churchill, and Philadelphia: Lindsay & Blakiston.

Pamphlets.—Quarterly Report of the City Physician of Boston, Jan. 1859. —Typhus Fever in Great Britain, by J. B. Upham, M.D. Boston, 1858.—Diphtheritis in California, by Q. J. Fourgeaud, M.D. Sacramento, 1858. Registration Reports of South Carolina, by Dr. R. W. Gibbs, for 1853, '56, '57, and of Kentucky, by Dr. W. L. Sutton, for 1854, '55, '56.—Historical and Biographical Address, delivered before the Cortland Co. Med. cal Society, by Dr. G. W. Bradford. Homer, 1859.

Reports.—On Moral Insanity, by Dr. W. M. Reese of N. Y.—On Umbilical Hemorrhage in the Newly Born, by Dr. J. F. Jenkins, of N. Y.—On the Functions of the Cerebellum, by Dr. E. Andrews, of Chicago, Ill.—On the Nervous System in Febrile Diseases, by Dr. Henry Fraser Campbell, of Ga.—On the Treatment best adapted to each variety of Cataract, by Dr. M. Stephenson, of N. Y.

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